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Design + Research + Society Future-Focused Thinking

EDITED BY:
PETER LLOYD
ERIK BOHEMIA

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Future–Focused Thinking

50th Anniversary International Conference
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Volume 9

Editors
Peter Lloyd and Erik Bohemia

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Editorial

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The 50th Anniversary conference of the Design Research Society is a special event at an interesting time for Design Research. The Design Research Society was formed in 1966 following the *Conference on Design Methods* held at Imperial College London in 1962. In the lead up to DRS2016 we contacted the secretary to the 1962 conference, Peter Slann, who now lives in Scotland, and who sent us the original reel-to-reel audio tape recordings of that conference. Listening to those tapes it is striking not only how similar some of the discussions are about design and design research, but also how much has changed. In 1962 every voice is a male British voice. One comment at the end of the conference stands out as significant. Thanking people for coming to the conference and looking towards the future at the end of the closing session, John Page, then Professor of Building Science at Sheffield University, asks the audience three questions (the quote is verbatim):

“if one agrees that there are bodies of knowledge that have been raised here, which need further exploration – particularly a case in point would be the terminology of design – is there any point in trying to get some kind of inter-disciplinary working party going on these problems? In this question of disciplines, is there any machinery or any way of arranging for an interchange of information between specialists and people working at Universities? Lastly, is there any point in making the whole thing more of a formal entity, a society, or something of that kind?”

Fifty years later it is clear that there was a point. The DRS as it exists today can trace its origins to the affirmation of that last question in 1962, and the ‘some kind of interdisciplinary working party’ that Design Research has become owes its identity to that 1960’s future-focused thinking.

Since the Conference on Design Methods in 1962 many Design Research conferences have been held, with the DRS often as a key organiser. Certainly in the earlier days, defined sub-fields of research originated from these conferences. Design Participation in 1971 started the participative design movement that has grown into present day co-design. Design for Need, held in 1976, and taking a global view of the population, started both sustainable and inclusive design, and Design Policy held in 1980 introduced a much needed social, political and international dimension to the design research field as Design itself lurched into the consumerist 80s.



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From almost every conference comes a thread that leads to the present day, so the fiftieth anniversary conference represents a point to gather these threads together, see how they complement and blend with one another, and consider what kind of textile they might weave in the coming years. Indeed, the early advice that many gave was not to spend too much time looking back and to concentrate on the future. For DRS2016, as well as the Design Research field more generally, the increasing number of PhD researchers is a sign that this future is set to be a healthy one. A significant number of papers in these proceedings are the result of doctoral research projects and organisations like PhD by Design, who had a strong presence at DRS2016, ensure that today's PhD Researchers will become tomorrow's Design Research leaders.

The DRS Conferences have always looked to develop new formats for people to engage with one another, over and above the standard paper presentation. The 1973 Design Activities conference aimed at:

“the provision of an extension of media forms beyond the normal ‘verbalized’ media of the average conference with the idea that such extensions were significant contributions to dialectical form, and not just ‘entertainments’.”

The 2014 DRS conference, in Sweden, continued that tradition by introducing ‘Conversations’ and ‘Debates’ alongside the more traditional academic paper presentation. It feels entirely appropriate that the field of Design Research is at the forefront of conference design, appropriating new technologies in developing more productive formats for discussion, networking, and presentation. And rightly so, because in an age when research papers and keynote presentations are available online we need to ask whether a conference, with all the travel, expense, and carbon involved, is still the most effective way of energizing and invigorating a research field.

DRS2016 is no exception and continues this ongoing conference prototyping activity. We have tried to develop a discursive conference that leans both towards the academic, in research papers, but also towards the practical in Conversations and Workshops. So this is a conference that presents existing research, projects, and discussions not as fixed end points, but as ongoing dialogue. To do that we have tried to balance the online conference with the offline one, and the ephemeral with the enduring. Partly this approach helps to provide a continued legacy for the conference, but it also helps to include as many people as possible in (re)directing the dialogical flow of research activity.

As an organising committee we met in January 2015 to talk about key questions, conference themes and conference design. From that discussion the three individual words of the DRS – Design, Research, and Society – were felt to define an interesting area for a conference; one that was about the practice and *doing* of design but also about design's societal impact and the moderating role that research plays between the two. Design + Research + Society perhaps represents a larger area than that of the Design Research Society, but as these proceedings demonstrate the appetite is clearly apparent for Design Research to embrace ever-wider concerns.

The underlying premise, however, was that 50 years of design research has provided us with a sound understanding of design and a solid foundation upon which to build. The interesting questions, then, appeared to us as not so much how we do more of the same – though that of course has its place – but in how we use what we now know. Hence the three broad questions that the papers in these conference proceedings respond to:

- How can design research help frame and address the societal problems that face us?
- How can design research be a creative and active force for rethinking ideas about Design?
- How can design research shape our lives in more responsible, meaningful, and open ways?

The DRS has a number of established Special Interest Groups (SIGs) which the organising committee thought important to prioritise but we also wanted to find a way to add additional emerging and complementary research themes to these. This resulted in a call for additional themes in June 2015 and a selection process that resulted in 15 further themes (from 25 proposals) alongside the 9 themes represented by the Special Interest Groups. The idea of a ‘conference of conferences’ began to emerge, with theme papers managed by sub-chairs, but consistency of peer-review overseen by a central review committee across all themes.

The systems currently available for managing paper submission, in the case of DRS2016 the excellent ConfTool system, now provide comprehensive integrative platforms to conduct sophisticated submission, peer-review, rebuttal, discussion, communication, and programming of papers, which means we can be more confident than ever about the academic quality of the final papers accepted for DRS2016. In total we received just under 500 paper submissions all of which were reviewed by two, and sometimes three reviewers, as well as being managed by theme chairs. In total 939 reviews were written by 290 reviewers with 200 papers being accepted, and a further 40 accepted following revision. This represents an acceptance rate of 49%.

The 240 papers in these proceedings have been grouped under 26 themes, 23 of which have been closely managed and developed by theme chairs (the other 3 themes derived from an Open Call). In these proceedings you will find an introduction to each theme by the relevant chair(s), outlining the background to the theme and putting the papers that were finally accepted and published into a wider context. Nine of the themes are the result of calls from the Design Research Society Special Interest Groups, which are active throughout the year and that report to the DRS council regularly. Many Special Interest Groups hold their own conferences, supported by the DRS, so the papers in these proceedings, responding to the overall theme of Future-focused Thinking, should be seen as a sample of those specialisms. Fittingly for a 50th Anniversary conference there is a strong historical thread of papers – the field of Design Research now becomes a subject of historical study in the themes of *Histories for Future-focused Thinking*, *50 Years of Design Research*, and *Design for Design: The*

Influence and Legacy of John Heskett. This is a useful development, and shows the maturity of the field now, with early work not just a familiar citation in reference lists, but something that can be looked at in a wider cultural and historical context.

Many of the new themes bring a more critical and speculative approach to Design Research, framing research questions and practices in ways other than what some see as more 'traditional' evidence-based approaches to research. These are papers that argue for a particular position or approach to understanding design or practice. Examples of these themes include *Aesthetics, Cosmopolitics & Design*; *Design-ing and Creative Philosophies*, and *Reframing the Paradox: Evidence-based Design and Design for the Public Sector*. The emerging area of Social Design is well represented in the areas of *Design Innovation for Society* and *The Politics of Commoning and Design* and shows the importance of Design Research to discussing and achieving concrete outcomes for social good.

The idea and limits of Design and Design Research are explored in many themes, but in particular *Objects, Experiences, Practices & Networks*; *Design and Translation*; and *Design for Tangible, Embedded and Networked Technologies* take a more systemic view of design, placing it within a network of activities and technologies. In contrast to this other themes focus much more on the individual and collective experience of designers and others involved in the process of design, for example: *Experiential Knowledge*; *Embodied Making and Learning*; *Aesthetic Pleasure in Design*; and *Food and Eating Design*.

Of course there are themes that have been ever-present in DRS, and in other Design Research, conferences – understanding design process and the nature of design knowledge are the subject of the *Design Epistemology* and *Design Process* themes. The practical impacts that design can have on all types of organisations are explored in *Design Thinking*, an area of continued and increasing interest, and *Design Innovation Management*. *Design Education and Learning*, now with its own large biennial conference series, was the most popular theme for DRS2016, with 28 papers accepted from 53 submissions.

Finally, there are a set of well-developed themes, organised as part of DRS Special Interest Groups, that broadly explore the welfare of others both in a small and large sense embracing ideas of person-centredness, responsibility and ethics. These themes include *Design for Health, Wellbeing, and Happiness*; *Inclusive Design*; and finally *Sustainable Design*.

As in any research field the definitions between sub-areas often blur and overlap, and there are themes that contradict and conflict with one another, strongly arguing against a particular approach or theoretical grounding of another area. The DRS2016 keynote debates were designed to explore some of these issues and fault lines but more generally this should be taken as a sign of health and maturity. For many years we have heard that Design Research is a new field, still finding its feet, but as an organising committee we think the definition and extent of the themes in these proceedings demonstrate precisely the opposite. In Fifty years we have built up a strong and diverse research field that is widely applicable, broadly inclusive and, in 2016, more relevant than ever.

There is a sense in which design research sits at the crux of a false dichotomy; between on the one hand research in a 'pure' form (which values objectivity, subjectivity, experiment, discourse, history, analysis) and on the other the active engagement in shaping future forms by suggestion, prototype, speculation, practice, and intervention at all levels, from the molecular to the political, from the anthropological to the computational. In an increasingly fragmented and atomised world Design Research is a field which reveals the falsehood of the dichotomy. It is a field that collectively links disciplines, audiences, and technologies in a critical but productive way. The design of a conference – with its implicit value systems, partiality to statistical analysis, but with an emergent structure and representation – is no bad example of a future-focused design research that shares what knowledge is known and explores what knowledge is possible.

Finally, we would like to thank all people – the local organisation, the international programme and review committee, and all the reviewers – involved in organising DRS2016 and who have contributed to such a huge collective effort. The valuable time that has been given in helping to shape and deliver the conference has been very much appreciated. Thanks should also go to the Design Research Society, for supporting the conference so effectively; to the Royal College of Art and Imperial College London for providing time and resources as partner Universities; and to the University of Brighton, particularly the College of Arts and Humanities, for enabling the early vision of a 50th Anniversary DRS conference to be fulfilled.

Peter Lloyd
DRS2016 Conference Chair
Vice Chair of the DRS
Brighton, UK

Previous Design Research Society and Associated Conferences

- 1962 *Conference on Design Methods*, London, UK
- 1964 *The Teaching of Engineering Design*, Scarborough, UK
- 1965 *The Design Method*, Birmingham, UK
- 1967 *Design Methods in Architecture*, Portsmouth, UK
- 1971 *Design Participation*, Manchester, UK
- 1972 *Design and Behaviour*, Birmingham, UK
- 1973 *The Design Activity*, London, UK
- 1974 *Problem Identification for Design*, Manchester, UK
- 1976 *Design for Need*, London, UK
- 1976 *Changing Design*, Portsmouth, UK
- 1978 *Architectural Design*, Istanbul, Turkey
- 1980 *Design Science Method*, Portsmouth, UK
- 1982 *Design Policy*, London, UK
- 1984 *The Role of the Designer*, Bath, UK
- 1998 *Quantum Leap*, Birmingham, UK
- 1999 *CoDesigning*, Coventry, UK
- 2002 *Common Ground*, London, UK
- 2004 *Futureground*, Melbourne, Australia
- 2006 *Wonderground*, Lisbon, Portugal
- 2008 *Undisciplined!*, Sheffield, UK
- 2010 *Design And Complexity*, Montreal, Canada
- 2012 *Uncertainty, Contradiction and Value*, Bangkok, Thailand
- 2014 *Design's Big Debates*, Umea, Sweden

Volume 9

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SECTION 22

FOOD AND EATING DESIGN

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Introduction: Food and Eating Design

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1. Introduction

Although almost all products in developed countries have been designed to some extent, the role of designers in determining what people eat and how they eat it has been relatively small. Until recently, the development of food products has remained primarily in the hands of breeders and farmers (agriculture), food technologists and marketers (food industry), and chefs and hospitality experts (restaurants). However, most of these professionals have not been explicitly trained to conceive and create new products for consumers and it seems likely that the food innovation process can benefit from the creative skills and tools that designers have acquired during their training and practice (Schifferstein, 2016).

Currently, the role of designers in the food realm is often focused on products or services associated with food, such as packaging and branding, tableware and flatware, cooking utensils, restaurant interiors or retail displays, but not so much on the food itself.

Fortunately, in the past 10 years we have seen a growing interest for the design discipline among culinary innovators, industrial partners, and scientific researchers in the food domain.

2. The potential of designers for food industry

Recently, I identified four ways in which designers can expand their role and provide added value to large food companies, over and above the tasks that are already carried out by the professionals industry currently employs (Schifferstein, 2016). First, designers tend to approach design challenges holistically, which broadens the scope of the project. As a consequence, designers will provide more innovative solutions that can guide multiple project aspects simultaneously (production, packaging, marketing). Second, designers shape their own tools that engage others who are involved in the project. Third, designers are equipped to manage the product development process and can facilitate cooperation between disciplinary experts. Fourth, designers can bring together and integrate the



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knowledge from different disciplines. By strengthening these roles, large food companies can deliver innovations that address actual consumer needs, provide a positive contribution to society, and consolidate long-term profitability and growth.

Figure 1 depicts the designer as the main integrator between information from the different disciplines. The broadened scope of the innovation project is visualized by including various fields of interest surrounding the focal topics related to consumer, business, and technology. This collection of adjoining fields is by no means complete, and may be expanded. The arrows emphasize that the designer is dependent on the expertise from the different basic disciplines. Designers tend to see themselves as gatherers and integrators of information (Bohemia, 2002) and by continuously developing and updating proposals on the basis of the feedback received during meetings, they play a crucial role in integrating the demands of different stakeholders and in achieving balance between potentially conflicting demands (Beardsley, 1994; Calabretta, Gemser, & Hekkert, 2014; Valencia, Person, & Snelders, 2013).

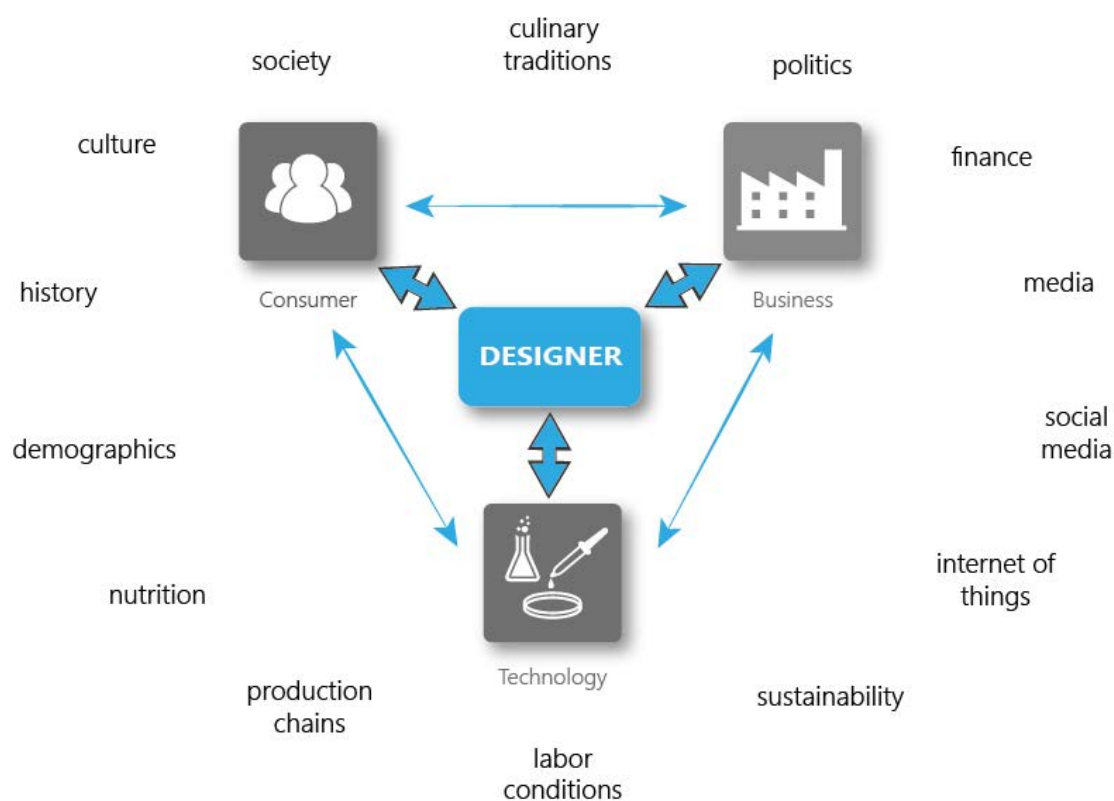


Figure 1. Potential role of the designer in food innovation processes in large food companies (from Schifferstein, 2016).

In addition to the food industry, designers might also increase their role in the restaurant and hospitality business. Several authors have already pointed out the large similarities between the competencies required for an innovative chef and for a designer (Bruns Alonso, Klooster, Stoffelsen, & Potuzáková, 2013; Kudrowitz, Oxborough, Choi, & Stover, 2014). Hence, it is likely that designers can successfully team up with culinary chefs to create new

and surprising dishes. They share a desire for creation, but also have their own fields of expertise that are complementary, such as the specialist knowledge of food ingredients, cooking methods, and preparation processes from the chef and the expertise on materials, 3D prototyping, and design methods from the designer.

3. What designers may learn from the food & eating realm

The domain of food and eating offers designers a number of interesting possibilities and challenges. I will give an overview of possible topics below, roughly divided into material properties, unique and food-specific properties, and challenges for food in society (from Schifferstein, 2016).

Food aesthetics

What makes foods remarkable as aesthetic objects is that people use all the different sensory modalities in the interaction with food products (Schifferstein, 2006). Each sensory modality employs a different perceptual mechanism and responds to a different type of stimulus (Schifferstein & Cleiren, 2005), but each modality also has its own mode of aesthetic experience. The laws that govern these aesthetic responses may be partly shared over modalities and are partly modality-specific (Schifferstein & Hekkert, 2011), but they all contribute to the overall product evaluation. Hence, food products offer the unique possibility to engage with all the senses in creating aesthetic responses. And the more senses are involved in creating a unified impression, the more engaging that experience is likely to be (Bahrick & Lickliter, 2000).

Prototyping material

Foods give designers access to an incredible amount of prototyping materials. They provide an enormous wealth in textures, consistencies, shapes, and colours that show interesting transformations when they are cut, heated, and moulded. Foods allow for a rapid, iterative process of developing concepts through preparing, cooking, testing, evaluating and adjusting (Bruns Alonso et al., 2013). In addition, food processing in a kitchen environment has been used successfully as a model to explore and experiment with complex and less accessible industrial processes, such as casting, extrusion, and contact moulding (Ayala, 2015). The familiarity of the material, the widespread availability, and the possibilities to adjust its properties through shaping, processing and cooking help to stimulate an embodied, hands-on approach in experimenting. In addition, by evaluating the sensory qualities of the end products, designers receive direct feedback on their manipulations. For instance, the shape of bread depends on the way the dough is shaped, following the baker's movements. Hence, this food product offers the possibility to relate movements of making to movements of eating. The familiarity of food as an everyday product allows designers to connect easily to their momentary and remembered personal experiences and to relate personally to the design topic at hand (Bruns Alonso et al., 2013). Because food preparation is always

embedded in specific cultural practices, foods help in developing designers' socio-cultural awareness, both of the designer's own culture and of unfamiliar cultures.

Do-It-Yourself materials

Food products and its waste can serve as the basis for new materials that designers can create themselves (Rognoli, Bianchini, Maffei, & Karana, 2015). These DIY materials allow designers to go beyond industrial and mass customized materials in creating new materials with unique experiential qualities. Such autonomous and independent production of materials enables designers to develop their own personal fabrication strategies, resulting in unique, custom-made products.

Perishability

If you start using food as design material, you will immediately notice that it is extremely perishable. Food quality literally deteriorates while you are working with it. Attracting (or losing) moisture, heat, or oxygen can quickly ruin a tasty product. Hence, designers who work for the food industry need close cooperation with chefs, food chemists, microbiologists, physicists and other specialists to create new products that are relatively stable and easy to prepare. In addition, designers need to be aware that any mistakes they make can directly harm people, if foods become infected or polluted. This provides an interesting, new environment in which designers can sharpen their capabilities.

Seasonality and regionality

Many food products are originally seasonal and regional products. To increase availability of products, the agricultural sector and the food industry have developed new ways of breeding, harvesting, transporting, storing, packaging, and preservation in order to increase availability, up to the level where products are available all year round around the globe (e.g., Shafiur Rahman, 1999; Zeuthen & Bogh-Sorensen, 2003). However, these changes have not necessarily improved the sensory and nutritional quality of the available food. In my opinion, in some cases the system has failed drastically: whereas oranges and mandarins that were available in the 1970s in the Netherlands only in wintertime were extremely juicy and tasty, the fruits that are currently available all year round are often dry and tasteless. This asks for new solutions that bring back the tastiness of good quality foods in Dutch supermarkets.

Connecting production to consumption

Due to the large distance between food production and consumption, many consumers have only limited knowledge about the products they consume. Being unaware about the effort that has gone into the production of a product is likely to result in low appreciation of the product and its producers, and increases the probability that the product is spilled or wasted. On the other hand, modern media make it relatively easy to obtain such knowledge in an instant, and to connect to people all over the world who may be involved in the

production, processing and trading of the various products. Hence, in order to avoid unnecessary waste and in order to build up a sustainable food system, one of the strategies may be to develop a system that connects people more closely to the food they consume. This requires a design approach that focuses on developing a system of production, processing and trading that provides good environmental and working conditions for everyone involved, and on creating good and reliable customer service that can provide all relevant information. Here lies a design challenge to create more transparency in the food chain, so that each consumer can find out where the product she buys was produced, and thereby re-establish the connections between production, processing, trading and consumption.

Promoting behavioural change

Current food and eating designers more and more also support behavioural changes among consumers, to improve a healthy life style. For instance, designer Boguslaw Sliwinski created plates with drawings in order to motivate children to eat vegetables (Dezeen, 2015). The HAPIfork helps people to slow down during eating by monitoring how fast they eat and warning them if they eat too fast (Hapi, 2015). Researcher Brian Wansink (Wansink, 2014) provides checklists with which you can redesign eating environments in order to support weight loss. Each of these examples can inspire designers to provide solutions that promote healthy eating behaviour.

3D printing

Although 3D food printing holds many promises that require further explorations, its role in the future food chain and its impact on the food industry are largely unknown. The 3D printer might develop in the direction of the food replicator that we have seen aboard spaceships in the science fiction series Star Trek: An apparatus that can generate a food product tailored exactly to the individual consumer's needs and wishes (Sher & Tuto, 2015; Sun, Peng, Yan, Fuh, & Hong, 2015). The introduction of such a device will have major implications for the way in which the food production chain is organized and how food quality is assured. Currently, it is already possible to print 3D food structures using basic materials, such as sugar, chocolate, or pasta (Dezeen, 2015; Sugar-Lab, 2015). In addition, 3D printing techniques hold promises for the creation of specific food structures that are hard to produce with other methods, such as the layered filament structures that are characteristic of meat (Sher & Tuto, 2015). Furthermore, 3D printing may be appealing to patients with very specific dietary needs, for people preparing foods in remote areas or under extreme conditions, or for culinary chefs who would like to create very complex or unique food structures.

4. Papers in this thematic session

Hermansdóttir, Dawes, Gideonsen, and De Moor, who try to stimulate people's connection with nature and their respect for authenticity and the people involved in food production in order to develop more sustainable food systems, tackle the challenge to connect food production and consumption.

Another paper by Stergiadoua, Darzentasa, and Bofylatosa also addresses the theme of sustainability, but these authors use the design of food packaging to communicate the values of sustainability. By embodying issues of concern, they hope that packages can stimulate consumers to reflect on the implications of their product usage and motivate them to adapt their behavior accordingly.

Fenko, Heiltjes, and van den Berg-Weitzel try to increase the quality of design by increasing the coherence between food, brand, and packaging in their offering. Hence, this paper broadens the perspective from the food product to the brand and the packaging to develop a more holistic and multisensory approach to product perception and innovation.

Together these three papers tackle interesting issues in food packaging design and provide essential suggestions on how we might increase the sustainability of the food chain.

However, these papers can only cover a small amount of the interesting and important issues that I have described in this tentative overview of food and eating design topics.

Hence, I hope this paper will inspire more designers to work in this important realm: our everyday experience with the foods that nourish us and provide us with pleasure.

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Designing with Empathy: Implications for Food Design

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Abstract: A broken food system has resulted in a wide disparity between food producers and consumers, undermining the perceived link between food and nature. It is therefore important to re-create the relationship with food when co-designing future solutions. This requires new tools and a new set of skills among food designers. Designing with empathy is well known from design processes as a way to respect human experiences. We therefore question if empathy for food can be used when co-designing the food system of tomorrow? The purpose of this paper is to explore what empathy means in food design, and how empathy for food can be created among users and stakeholders involved in the design process. The aim is to contribute to strengthening food design as a field that can contribute to tackle future food-related challenges in a responsible way.

Keywords: Design Empathy, Empathy for Food, Organic Food, Sustainable Food System

Organic worldview for solving future food challenges

Challenges within a broken food system - call for a paradigm shift

Many high income, as well as low- and middle income countries, are experiencing a dramatic growth in diet-related non-communicable diseases, such as heart disease, diabetes and cancer. While 795 million people went hungry in 2014, 39% of adults globally were overweight and 13% were obese (WHO, 2015). In 2050, the United Nations predict that there will be 9.7 billion people on this planet and according to the Food and Agriculture Organization of the United Nations (FAO), food production has to increase by 70% to feed around 9 billion people. Yet, expanding current food systems would cause enormous environmental, health and economic risks. Instead, opportunities lie in making food supply chains better, not bigger. For example, by increasing efficiency and reducing waste, as



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approximately one third of the food produced for human consumption in the World gets lost or wasted every year (United Nations Environment Programme, 2015). With urbanization, globalization, and the centralization of the food distribution, this has increased both physical and mental distance. For consumers, it is not clear who produces the food, how it is produced and what efforts and energy are needed to produce it. The need for an integrated agenda on food, health and sustainability is urgent. As argued in Eat (2015) food industry leaders need to realize that investing in their own long-term growth means investing in sustainable and healthy food. Furthermore, the United Nations call for a paradigm shift in agricultural development: From a “green revolution” to an “ecological intensification” approach (UNCTAD, 2013). Similarly, Organics International (IFOAM) call for solutions focusing on holistic empowerment and true value from farm to final consumer, which would move societies into the third phase of the organic movement - Organic 3.0²³⁵. Organic 3.0 is about bringing organic out of a niche market into the mainstream and position organic systems as part of the multiple solutions needed to solve future food challenges. IFOAM further calls for solutions focusing on holistic empowerment and true value from farm to final consumer (Arbenz, Gould, Stopes, 2015). Ingebrigtsen and Jakobsen (2011) argue that in order to cope with contemporary challenges a paradigm change is needed. Not just from a mechanic to an organic view, but also from the economic to the ecological man. Ingebrigtsen and Jakobsen (2011) further point out that the mechanical worldview does not leave much room for ethics or aesthetics. “It is a shift that requires us to expand our thinking from the head to the heart. It is a shift from an ego-system awareness that cares about the well-being of oneself to an eco-system awareness that cares about the wellbeing of all, including oneself” (Scharmer and Kaufer, 2013, p. 1- 2).

Design empathy as a tool for Food Designers

The disciplinary combination of food and design, the field Food Design as a research area has been explored for the last 10 years (Hermannsdottir, Poulsen, Fisker, 2013, Olsen, 2015 & Zampollo, 2015). It still lacks theoretical foundations for having a sole definition of what Food Design is. In this paper we use the definition by Dr. Berry Kudrowitz, member of the International Journal of Food Design. Food Design: Designing with the medium of food and/or designing items, services, spaces and systems related to food. Zampollo (2015) thus argues that there is a scope for design methods developed specifically for creating food products, food services or food systems. In this paper, we explore how design empathy can be applied when designing solutions, that address current societal and ecological challenges of the food system, and help stimulate an organic one. Such societal design is motivated by social goals rather than profit maximization (Mulgan, Tucker, Ali and Sanders, 2007), and is

²³⁵ Organic 1.0 was started by our numerous pioneers, who observed the problems with the direction that agriculture was taking at the end of the 19th century and the beginning of the 20th century and saw the need for a radical change. Organic 2.0 started in the 1970s when the writings and agricultural systems developed by our pioneers were codified into standards and then later into legally-mandated regulatory systems.

among others, inspired by Victor Papanek's ideas that designers have a responsibility; are able to cause change in the world through design; and should design for people's needs rather than their wants (Papanek, 1984). We will look into empathic design as it has proven to be useful in addressing increasingly large systemic challenges, such as education and healthcare (Brown, 2009). Empathy is the ability to be aware of another person's feelings and thoughts without having had the same experience. Empathic design focuses on the role of experiences, desires, moods and emotions in human activities (Mattelmäki, T., Vaajakallio, K., & Koskinen, I., 2014). In human-centred design (Buchanan, 2001), empathic design can be described as an interpretative and respectful attitude, process and creative tools for exploring, discovering and imagining with people focusing on subjective and emotional dimensions, and on what is meaningful. It is about abilities and willingness, it is about immersion, it is about designing for experiences (Battarbee, Sure, Howard, 2014). Empathic design first appeared in business literature in the late 1990s, and researchers hailed the importance of emotion being crucial to design research (Dandavate et al., 1996). It was identified as a way to uncover people's unspoken latent needs and then address them through design (Leonard & Raport, 1997). Latent needs are those that people are not yet aware of. They are needs that become realized in the future. Tacit knowledge is knowledge that people can act upon, but cannot readily express in words (Polanyi, 1964). Sanders (1999) has worked with different ways in user research to uncover latent needs and tacit knowledge. She divides user research into three areas according to the focus and the kind of information that can be acquired with the methods: say, do and make. Say and do relate to interviews and observations. The make-tools are physical or visual aids to allow people to visualise and describe their expectations and dreams. According to Sanders these categories should be explored simultaneously to achieve an empathic understanding of the users. Research shows that empathy not only helps designing better and more human centred solutions. It is also a powerful drive in the design process as it motivates to solve design challenges. This is due to the fact that putting ourselves in someone else's shoes increases our so-called field-dependent thinking (Decety & Ickes, 2011).

Designing with empathy for food

Now, how is it possible to apply design empathy in food design? How can it be useful when addressing current challenges of the food system, and help stimulate an organic one? The food system has resulted in a wide disparity between food producers and consumers, undermining the perceived link between food and nature. We believe empathy is necessary to help recreate this link, as the strengths of design empathy lie in exploring, discovering and imagine with people focusing on subjective and emotional dimensions. In food design this does not only mean involving people, but also involving food, through engagement with nature, food and the people involved in the food production. We believe food literacy is one of the fundamentals for being able to create empathy for food. Vidgen and Gallegos (2011) define food literacy as understanding the nature of food as a response to the lack of knowledge of food production, processing, cooking and tasting. Inquiring into food literacy

can help illuminate the complex dimensions of food production, that is rarely captured by existing industry and mechanical processes incentivized by profit. Grow It Yourself (GIY) is an emerging global community of domestic food growers, which started in Ireland. The GIY movement brings people together in homes, schools, communities and online to inspire and support each other to grow food. According to GIY the real potential of the home grown food revolution is not just in the actual food grown - but the empathy created by the process of food growing (Kelly, 2013 & 2015). Agency of own food production can be compared to art-making practices and approaches with a tremendous potential to impact people and places (Sommer, 2014). While artists may lack the technical skills and tools to systematically transform urban communities and the lives of residents, their approach is a critical dimension to bring us back to having empathy for food production. Gaining empathy for food means gaining respect and understanding of what food actually is. This involves how it nourishes and sustains us and how much time, effort and resources it takes to grow it and make it in a way that is sustainable for both our health and the health of the planet. This understanding can be related to Arne Næss philosophy about deep ecology, where the core principle is the belief that the living environment as a whole should be respected and regarded as having certain inalienable legal rights to live and flourish (Næss, 1989). Empathy for food can imply how food feels, as in the study of Temple Grandin (Lynch, 1998), the ability of feeling the same as the animals feel. The perspective we take in this paper is not the ability to know “what would the vegetable feel about this”, but to understand the relation of food and nature, what it takes to sustain it and grow it. This for example entails what the different types of plants need in order to grow and thrive, to become nutritious, and how to make full use of the important resources that they provide. We believe this is important in order to change our attitude towards food, and realise that it is not only about our own desires and tastes at any given time. If successful, this can lead to change our actions and choices when it comes to which food we choose to grow or buy, and how we make full use of it. In this paper we explore designing with empathy for food, as being the act of designing with respect, understanding for, and engagement with the food and the people involved in its production. As saying, doing and making should be used simultaneously to achieve an empathic understanding, we will focus on creating empathy for food through engagement and experimental learning when co-designing with users and stakeholders.

Exploring empathy in food design through three cases

What follows is a discussion of three co-design (Sanders & Stappers, 2008) cases based on food design projects carried out by the authors of this paper. The cases explore the role of nature as a physical context and the role of food as a tangible tool.

Case 1: Creating empathy through co-designing in nature

How can food designers create respect and understanding for food through co-designing a meal experience together with foragers and farmers in the physical context of nature? Food

Studio, an interdisciplinary expertise team of food specialists and food designers in Norway, arrange four seasonal *Get Aways*²³⁶ as workshops and dinners throughout the year, where the participants take part in the entire process in order to create a meal out in the nature. They forage, harvest and cook together with the Food Studio crew - to create a closed circle that people can understand from beginning to end. This is done in close collaboration with knowledgeable and passionate people ranging from foragers to farmers to influence food literacy and empathy for food among urban citizens. From 2013 Food Studio has arranged 11 Get Aways (one in Paris, one in Melbourne, one in Tokyo, one on Awaji Island and seven in the Oslo-area). This concept builds on the experience from different versions of the concept that all together is carried out in 50 events over 5 years from 2011 - 2016.

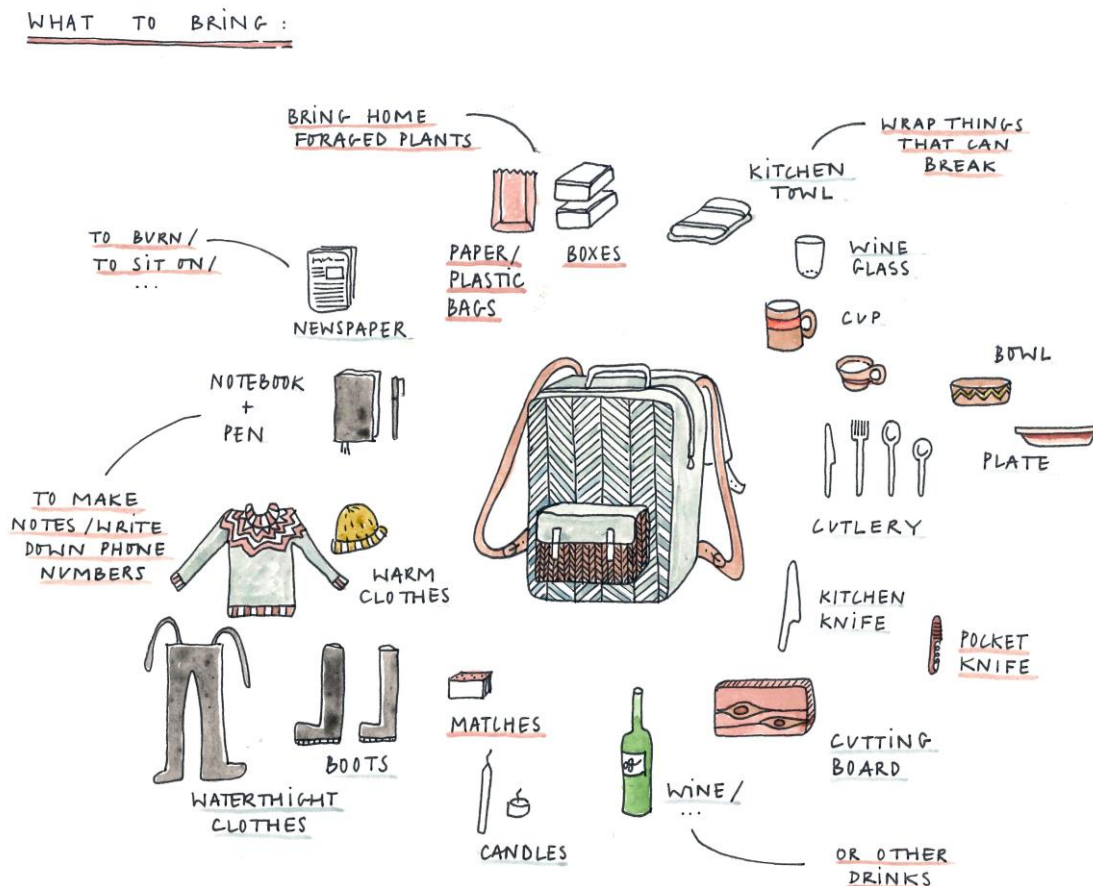


Figure 1 This is participant's instruction manual for preparing for Spring Get Away by the shore.

Experiences from the Get Aways show that when relating to nature, the producer and the way of producing comes together. It creates respect and understanding for the effort, natural interconnectedness and fine balances of the systems that lie behind the food we eat, creating empathy for food among participants. Every situation is different - a different forest, a different climate, a different season. The event setup is therefore always on the

²³⁶ <https://foodstudio.no/past-events/get-away-spring-by-the-shore/>

premises of nature, co-designed by a team consisting of Food Studio, forager/farmer and participants. Together they have to find out which quality the harvest has at the time that it is used. Although there are certain overall parameters known based on geography, season and weather report, the process is full of uncertainty and has to be adjustable to nature. There is no guarantee for being able to harvest enough food and to be able to cook successfully in a non-controlled environment. For example, making cheese in the woods where the temperature is not optimal for achieving the right consistency. The only back-up plan is a piece of bread, which makes the experience stronger as both arrangers and participant are solely dependent on nature, and dependent on the forager/farmer of knowing how to harvest and how to be able to utilize the harvest in the best way possible. Active involvement of participants and food producers has therefore been one of the keys to create empathy for food as the act of harvesting or foraging food for eating makes participants vulnerable and respectful for nature. This also creates respect for the forager/farmer, which has strong respect for food as his livelihood is reliant on nature - weather, seasons etc. This case explored Get Aways as a co-design activity to create empathy for food among participants. What implications does this have for the role of the food designer, and how does this strengthen design of the food systems of tomorrow? As mentioned above, empathic behaviour motivates us to solve design challenges. As research has shown putting ourselves in someone else's shoes increases our so-called field-dependent thinking. In this case participants put themselves in the shoes of being dependent on nature and natural harvest, and thus we believe this can help motivate and help food designers to design food systems that are dependent on this. Co-design in this case helped experiencing the value of knowledge and practice in the extreme context of being immersed and dependent upon nature with its limitations. Being a tactile experience in a new environment gives the participants ways to learn and internalise knowledge in a manner that is rarely available to most audience today. The key to success here was giving participants the possibility of being a part of co-designing the food experience step by step based on the premises of nature gradually develop empathy for food through saying, doing and making.



Figure 2 Participants in Spring Get Away by the shore fishing in Oslofjord. Photo by Svein G. Kjøde.



Figure 3 Edible greens that participants have harvested by Oslofjord in Spring Get Away by the shore. Photo: Svein G. Kjøde.

Case 2: Creating empathy through food as tangible tool

How can food designers create respect and understanding for food through co-designing, using food as a tangible tool? Is it possible to transfer context and tools from Get Aways, for creating empathy for food far away from food production and nature? This was explored in an interdisciplinary workshop involving leaders from supermarket chains, food producers and academic researchers in developing future solutions for solving a broken food system. The task given was to design a retail concept for the future consumer that requires transparency and relies on sustainable value chains. The aim was to see if it was possible to create empathy for food through involving newly harvested biodynamic vegetables as tangible tools for bringing participants closer to food and nature. Tangible is a well known tool to use in the design process to assist the conversation and interactions with participants involved. It primarily focuses on the use of three-dimensional mock-ups, so-called “things-to-think with” which enable reflective conversations (Brandt, 2009). They serve as boundary objects (Star and Griesemer, 1989 & Star, 2010) that span the gap between the different competencies and interests of participants in the design process.



Figure 4 Co-designing with broccoli as a tangible tool. Photo: Alexander Benjaminsen.

Each group, consisting of one researcher, one producer and one leader from supermarket chain were given one vegetable, one knife, one grater and one pen. The vegetables were organically produced, irregular and still containing dirt, showing that they had just been harvested. This brought participants closer to food production and nature through being able to feel the texture, smell and freshness of nature. Participants had different ways of approaching this, some groups could not break out of expressing through writing (ex. using red beets to write), while others used them as “things-to-think with”. Throughout the workshop participants gradually engaged more and more with the vegetables as the workshop became more solution oriented. Participants started taking their gloves off and

borrowing vegetables across the groups. They used the vegetables to explain when discussing value chains, and always discussed with the food product as a reference point. The solutions created in the workshop range from an app helping customers matching their organic values to the values of the food product, to systems cutting out the middle man to bring the value food product closer to the customer (figure 5). These solutions reflect respect towards the food product as they focus on highlighting the real values of the food product, being a natural harvest. What actually happens among participants when using vegetables as tangible tools? And how does it become a “things-to-think with” which enables reflective conversations based on respect for food? The process showed that the food product was always at the centre of the discussion, helping idea generating solutions taking point of departure in the organic premises of the product. Having not solely to rely on words helps participants interact with this systemic challenge, as it becomes possible to show the abstraction through building with the physical elements. But how does the tactility stimulate the process of generating new ideas and solutions? By getting their hands dirty, touching food, working with food, it helped participants stay focused on the organic connection of food. Food is not just the end product in a restaurant or a store. It is not all the different food products you can buy, often heavily processed. For achieving a sustainable system, food should first and foremost be the ingredients you find and grow based on natural premises. The case shows that involving food product as a tangible tool has several potentials for helping participants stay focused, reflect on the topics and think outside the box, and seeing the bigger picture. That there is a need for solutions that are based on organic worldview, and not a mechanical one.



Figure 5 ØkoLOGISK - concept for an organic shop connecting producers and customers more closely. Photo: Alexander Benjaminsen.

Case 3: Empathy for food throughout the value chain

As the aim of this paper is to find ways to design the food systems of tomorrow, we question: What is a successful result of a design process where empathy, respect and understanding for food throughout the value chain has been utilized? Røros is a small municipality in the mountains of Norway, far from the ocean both in distance and in altitude. Visiting Røros you might not understand just how small it is though, because it has an urban vibe and lots of Røros-owned businesses and well established brands. Some of this success may come from being fairly isolated at times, due to its location far up in the mountain. Perhaps it is possible to trace it back to Røros' early days as a copper-city, a place of production and increasing wealth (Wolden, 2010). And perhaps it is possible to trace it back to something that has to do with empathy - for each other as well as for food? Let us take a look at one particular example: Rørosbryggeriet [e. Røros brewery] and Smaken av Røros [e. Terroir Røros], two companies owned by Røros Food & Beverage Group AS. The companies work with food and product development with high respect and empathy for food. We have already mentioned how we view empathy for food as something that is more about understanding the produce and how to grow and treat food. But there is another aspect to this that our case from Røros highlights. It is about respecting the resources enough to want to use them to the fullest. This perspective is also known from the philosophy of nose-to-tail, brought forward by the renowned chef Fergus Henderson saying that if you are going to kill the animal, it is only polite to use the whole thing (Henderson & Bourdain, 2004). The way they do this in our case is that they - in order to make use of the local resources at Røros - engage have a wide variety of people who pick and deliver berries to them. These people are both school children and seniors, as well as foreigners coming to Røros to work - because Terroir Røros pay them a wage considerably higher than a lot of other berry manufactures do. This means that each berry is more expensive for the company, so they need to get as much out of every single berry as possible, using all the resources the berry provides. They do not waste a single drop, or a single edible part of the berry. Take the crowberry: After squeezing it to make juice for their crowberry jelly (figure 6), they take the pits and the skin, still bursting with taste. What would normally be considered waste is therefore used by Røros brewery to flavour a particular type of porter. Now you might think there is nothing left, but there is still one more thing to extract from the berry: the aroma. As flavoured water becomes increasingly popular, but very few of these waters in Norway are flavoured with local flavours, Rørosbryggeriet started a project together with the technical research institute SINTEF, among others, to try to catch the aroma when they boil the berries for their crowberry jelly.



Figure 6 Organic Crowberry jelly by Terroir Røros.

Another aspect of this empathy that we believe is integrated in the thriving local food environment in Røros, is the way the different producers collaborate and make use of each other's knowledge as well as facilities. Terroir Røros, once again being a perfect example, share their space with both the Røros brewery and Gaute, a food company that recently moved their production from a bigger city, Trondheim, to be a part of the passionate food environment in Røros. Because they want more of the food resources at Røros to be both harvested and processed at Røros, they decided to use leftover eggs from a local farmer to make a rich, luxurious mayonnaise. Lacking proper processing and packaging-machines, they would have had to make an artisan product that would easily have a cost of 70-80 NOK (7,5 - 8.5 EUR) in the stores. Though they do value their way of doing things, and are not afraid to claim the costs of their operation through the pricing, they realized that with Gaute's facilities they could reach a better price. They could make their premium aioli/mayonnaise, consisting of 30% egg yolk, not the 12 % industry standard, at a price that would make this product a true alternative in the everyday shopping, for the average consumer. The product is now priced just below 30 NOK (3,2 EUR) at the store, making it an accessible alternative for the everyday shopper. This case described design and development of commercial food products where respect and understanding for food and nature has been utilized throughout the value chain. Having such respect forces new way thinking, resulting in three different food products based on one raw material, and a food product exceeding technical quality limitations. This shows that there is great potential for reaching solutions that strengthen sustainable food systems when involving empathy for food in the design process.

Discussion – design as an actor in food crisis

Can empathy for food be used as a tool to simulate better food system? It will take time before a scientific research gains big enough data set for politicians to rely on and create top down shift. Therefore, food designers can play a big role in shifting to organic society through a market driven change. Motivations for driving the change can be hard for

consumers to navigate in due to the complexity of the wicked food system challenges. After a dominant food system based on top down rules, labelling, and advertisements' it is time to equip food designers and industries with the right tools for being able to take decisions based on organic values. Therefore, empathy for food can play a crucial role for food designers when involving industries and users in design processes for co-designing solutions that can position organic systems as part of the multiple solutions needed to solve future food challenges. It motivates and allows participants to take decision based on understanding and respect for food, and it allows industries to be able to stay ahead of competition through paradigm shift. According to Henderson (2015), the paradigm shift means that three of which industries investing in environmental sustainability are likely to be a significant source of competitive advantage. The key is to build deep cultural and emotional commitment to change. Beyond the business model, it is important to focus on the human values that come from the heart (Henderson, 2015).

Summary

The paper addresses food consumption and food systems. It focuses on studying if empathy for food can support in the process of developing sustainable food systems. It looks into designing with empathy for food as the act of designing with respect for, and engagement with the food and the people involved in its production. The cases discussed in the paper show how empathy for food can be created through engagement and experimental learning when co-designing with users and stakeholders. The first case shows this through using nature as context and design material, the second case shows this through using food as tangible tool, and the third case shows how empathy for food can be translated into commercial food solutions. The ability to respect and understand through engagement with the food and the people involved in its production informs and inspires the food design process. Such field-dependent thinking for the relation between food, food production and nature motivates and helps food designers deal with sustainable food system challenges. The food system is complex and it is important to note that empathy is only one of many tools that can be useful in the food designer's toolbox. When working with such complex challenges food designers collaborate with experts within food literacy, sustainability, sensory etc. We will therefore continue questioning and exploring ways to involve empathy for food in co-design processes involving different types of actors with different sets of expertise. If successful, this can strengthen the food design field to tackle future food-related challenges in a responsible way.

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Designing for sustainability: a dialogue-based approach to the design of food packaging experiences.

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Abstract: Packaging plays a vital role in making products competitive and our lives vibrant and interesting. This paper investigates the design process of food packaging as an artifact that aims to co-create meaning entwined with the values of sustainability through designing propositional artifacts. These are artifacts that embody issues of concern and can help us reflect on their implications. A case study is presented where the aim of communication-through-packaging was to disseminate the values of sustainability in various ways, by informing and motivating consumers to change their buying habits, encourage packaging reuse or upcycling, and embrace authenticity, quality and locality in food products. More specifically case study details the development of a packaging artifact for butter beans from a unique, protected region in Greece. The tools guiding the design process were a framework of information abstraction along with Information Design guidelines. The 'dialogue based' approach refers to the co-evolution of meaning.

Keywords: packaging, food design, design for sustainability, design dialogue

Introduction

Design for sustainability calls for a paradigm shift away from today's unsustainable models of production and consumption. Packaging creates designed ephemera that due to their nature have the capacity to make a substantial environmental impact. The food packaging industry is well aware of the need to lessen the footprint of packaging while simultaneously maintaining their focus on issues such as product safety; product promotion and packaging ease-of-use. Much research is underway to develop new packaging technologies in this multidisciplinary area (Verghese et al, 2012). The consumer also has responsibilities beyond adopting responsible behaviours such as showing purchasing preferences for sustainable



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packaging and re-using/recycling packaging. An example might be that of actively supporting local food producers in order to reduce the logistical footprint of products, etc. Trying to reconcile these aims, and others that emerge, requires good thinking tools for designers that can help encompass, as far as possible, such aspects of the overall problem space that make up the sustainability debate.

In this investigative paper, we propose a way to approach the design of more sustainable packaging by using a four layer abstraction model. Through this we investigate visual myth; explore a craft approach; and make use of information design in order to set about creating packaging that embodies the values and meanings associated with sustainability in a material form. The material aspect of the product is the basis on which the user experience will be built, and it should encapsulate the values and goals of the design brief. More complex meanings will emerge through a dialectic process with the product, while visual myth and information design can help guide those meanings to be translated into a new understanding of sustainability. This method aims to provide a more holistic approach to designing food packaging whose purpose, besides those of protecting and transporting the product safely, also aspires to trigger behavioural change towards a more sustainable everyday attitude to food production, consumption and packaging. The MSSA model was adopted as a vehicle to negotiate the creation of meaning associated with sustainability given both its contested and emerging characteristics that create the need for dialogue towards a consensus of what it is and how to get there.

Meaning, Semantic, Syntactic, Artifact (MSSA) Model

Packaging can be perceived a means of communication between the producer and the consumer. This communication takes place on many different levels simultaneously. In order to better analyse and model this process of communication, the MSSA framework (Bofylatos & Spyrou 2016) was adapted to the context of packaging. The framework proposes the use of four different layers of abstraction of information in order to facilitate the creation of shared meaning through dialogue. These layers are at the level of meaning, of semantics, of syntactics and of the artifact. Communication modalities and the types of concepts are different at each level.

This model is grounded in the idea of the “holistic reconstruction” of the design process. Given that “the whole is larger than the sum of its parts”, deconstruction into layers of abstraction can lead to the fragmentation of information and the loss of its richness. In order to avoid this loss, the mechanisms of reframing and emergence have been adopted when switching between layers.

This framework enables and encourages a robust communicative context for the design process, for cases where the design refers not just to the qualities of the product, (the packaging) or the service it is to perform (protect, promote the contents of the package), but to the system that these are to operate in. In the case considered here, sustainability is a wicked problem (Ehrenfeld 2008), requiring the creation, maintenance and management of

consensus during the design process. Dialogue is central to consensus and when successful, triggers the co-evolution of high level meanings and shared understandings, which is a requisite for a successful co-design process, the creation of shared meaning with different stakeholders.

In the context of this case study, the different layers of meaning, values and information embodied in the packaging were taxonomised into the different layers of abstraction. The notion behind the process was to synthesise different design principles associated with packaging design and with creating all the different dimensions of the product.

In this way, the meaning layer is associated with sustainability and creating understandings about how to transition towards this shift. This type of meaning is tied in with wicked problems thinking (Rittel, 1972) and due to its wicked nature it is impossible to define, since defining a wicked problem is in itself a wicked problem. The semantic layer is associated with branding and the visual myth of the product and the transfer of implicit meaning. It is about communicating the values associated with sustainability in a non-verbal way. With the syntactic layer, communication takes form through explicit meaning designed using methods from information design. The goal of this information is to be combined with the visual elements of the semantic layer to lead to the emergence of new meaning about sustainability. Finally with the artifact layer of abstraction we look into the physical aspect of the product and how the tacit knowledge embodied in the materials and processes chosen can supplement this process of communicating the values of sustainability.

Meaning layer

This layer is made up of the inexpressible ideas that are associated with sustainability. Sustainability, besides being a wicked problem, is a widely contested concept and a wide spectrum of approaches refer to themselves as sustainable. Eco-modernist approaches such as Life Cycle Analysis or CO2 footprint analysis aim to optimise the production process of goods and service without challenging the ideas that created and foster today's unsustainable consumption. On the other side of the sustainability spectrum we find radical interpretations of sustainability such as transition design (Irwin et al., 2015) and sustainment (Fry, 2004), these ideas recognise a need to shift away from the modernist system of values and work towards restructuring human society through the reconstitution of the domains of everyday life (Kossof, 2011) The main challenge when dealing with emerging phenomena is that they can only be partially described, as the emergent variety (Bofylatos et al., 2012) does not exist and we can only speculate about the characteristics it might have when emergence takes place.

In order to better understand the meaning associated with both the product and its packaging seen as a whole, an analysis of different types of meaning was undertaken using the quadruple bottom line (Walker, 2011). The quadruple bottom line recognizes four types of meaning: personal meaning associated with spirituality, imagination and inner meaning; social meaning associated with social norms, morality and empathy; practical meaning associated with practical issues such as covering the basic needs for survival. These three

types of meaning are nested within the existing economic model and thus give rise to the fourth type of meaning, the economical meaning. However, in contrast to the traditional model, economic gain is not the main goal of this meaning, but a side effect of creating sustainable artifacts. Uncovering these types of meaning in a particular context, that of food packaging, can help to make emerge an overall meaning for sustainability in that context.

Semantic layer

The communicative power of packaging at a symbolic level is well understood and manipulated (Estiri et al., 2010). It is used to distinguish brand and to promote marketing information. Product packaging is capable of influencing the identity of the product brand and also the self-identity of the consumer. It influences brand and self-identity via the lived experience of handling the packaging, having it in the home, where it may even be on display. In addition, it offers experience mediated by advertising. (Underwood, 2003, Venter et al., 2011, Verghese et al., 2012). In advertising, packaging is critical to the communication of the "promise" of the product experience prior to the sampling of the product, where imagery and other symbolic representations of ideas can evoke a wide range of responses, from feelings and memories to those involved in sensory effects like smell, or taste (Underwood, 2003). In the turn towards sustainability, we need to shift the narrative of advertising from promises about the product to including messages about contributing to sustainability.

Using the language of myth, i.e. stories that reflect a collective, cultural, subconscious understanding and expression, we can point to meanings, but these meanings will be ambiguous and open to interpretation (Walker, 2006, p.104). Outer appearance means very little when using the symbolic language of metaphor and myth and what really matters is what lies behind the appearance. In this sense branding and visual myth, aim to trigger the co-creation of implicit meaning through non-verbal communication. The visual myth is a means developed to acknowledge and express ideas about the roots of our design decision making, (Walker, 2006, p.101). In this case it provides a 'way in'; it allows a deeper understanding by adding to the dialogue already started by the original design work. Thus, the visual myth supplements the design object; refers to the creative process behind the designed object; is impressionistic, ambiguous and holistic and refers to, but does not explain, a creative experience, in the same way that the language of scripture, myth, fable and parable are symbolic so that literal meaning loses importance (Walker, 2006, p.101).

Designers are exhorted to implement the cultural wants, preferences and attributes of people into the products that they create, in order to make them culturally suitable and pleasurable for use by all potential users. The dissatisfaction of consumers who use products can be linked to the globalization concept (Razzaghi & Ramirez Jr, 2005). Increasingly, consumers notice the gap between actual and desired pleasure when they consume products and thus their need for authenticity in products emerges. Authenticity becomes an evaluation and decision-making criterion that guides their choice (Liao & Ma, 2009). Consumers prefer product with authentic attributes such as originality, quality

commitment and credibility, heritage and style persistence, scarceness, sacredness and purity. For them, authentic products not only satisfy their quality request, but also provide unique values such as assuring them of a healthy and sustainable life or providing them a meaning of sanctity.

Authenticity is a subjective term, but there are societal statements that consumers gravitate toward, and these can be valuable tools in packaging development. What brings out authenticity in packaging is origin; values of the people related to product development; components that build interest, especially in the natural; and nostalgia that makes it memorable (Higgins, 2011).

Syntactic layer

Information design is “the defining, planning, and shaping of the contents of a message and the environments it is presented in with the intention of achieving particular objectives in relation to the needs of users” (IIID, 1997). Information design goes beyond text and image to design information to be better organized and presented, understandable and satisfying when reading/viewing it. At the same time, images are considered highly effective means of communication “Visual communication is universal and international; it knows no limits of language, vocabulary, or grammar and it can be perceived by the illiterate as well as the literate” (Kepes, quoted by Sless, 1981). Of course, it is necessary to take account of the complex institutional and social frameworks within which the packaging is expected to function, and that are inhabited by the prospective buyers of the packaged product.

In the context of sustainability, a product’s values and local culture are an integral part of the message to be communicated through packaging to the consumer. Information design in packaging design is used to communicate values, cultures and ideas as well as the mandated nutritional information. The communication on the syntactic level is associated with complicated notions, but not complex ones (Glouberman & Zimmerman, 2002) and in this sense, design can create the stepping stone of meaning transfer through the use of explicit reference to the values of sustainability, in contrast with meaning transferred through the semantic layer which is implicit or the artifact layer where the meaning emerging through knowledge transfer, is closely tied to tacit knowledge.

The packet is a designed sign and all of its aspects, both physical and semantic, can ground the product to the shift both in theory and practice of values associated with sustainability.

Artifact layer

The artifact layer of the MSSA model refers, in the case of packaging, to the physical world. Central to the new discourse on sustainability are the study of material culture and new ways of looking at artifacts. Moving away from the mass produced object and adopting a craft approach alleviates parts of the “malaise of modernity” associated with the production of goods. Embodied knowledge created during the process of crafting is a form of tacit knowledge associated with material that “*can only emerge when engaged in a dialectic process with the material*” (Massumi, 1992, p.14)

"The qualification of craft practice is neither predicated upon established hand working, machine based skills nor new methods which employ advanced technology but rather on the articulated relation between hand and mind in making which secures a direct human presence, as the loci of power and knowledge, in the made" (Fry, 1994 p.97).

This is reminiscent of Heidegger's essay "The question concerning technology" (Heidegger, 1977) where the differences between mass production and techne are outlined in the sense that the artifacts produced through this process are engaged in "concernful dealings"; a form of agency that aims to carry out particular functions. Thus what defines our social relations is in large measure prescribed back to us through artifacts:

"knowledge, morality, craft, force, sociability are not properties of humans but of humans accompanied by their retinue of delegated characters" (Latour 1988, p301).

Craft, therefore, is an activity which facilitates a certain experience of being in the world. Shifting from a 'Having' way of being in the world to a more authentic way of 'Being' in the world is central to the transition towards sustainability. Therefore, craft can be understood to be more than just an activity of making functional or symbolic objects. It is a process of co-creating tacit knowledge (Cross, 2006) and a way of creating propositional artifacts that challenge the existing model of 'thingness' and put forward a conscious use that aims to reconstitute the holon (Kossof, 2011) with respect to material culture.

In the context of packaging, we are looking at design ephemera with a very high degree of planned obsolescence. This creates the need for a strategy selection that fosters the creation of a long lasting bond with the artifact through re-use and upcycling while at the same time taking the traditional, local craft practices into account. In the following case study we attempt to present such a process in which packaging was approached in a holistic manner and communicating meaning on every level was the goal. Designing ways to transfer tacit implicit and explicit knowledge via the packaging was motivated by wanting to investigate how this process will lead to the emergence of new meaning associated with sustainability.

Case study

The case study describes the design of a food product packet undertaken with the goal of promoting sustainability. The product selected is butter beans cultivated in a protected geographical region of Greece, the Prespa lakes. It is a product that is produced using 'sustainable' means, it is strongly connected to the local society and an integral part of Greek food culture. The need to find a suitable packaging for this product was identified due to the fact that this product comes in plastic bags for supermarket shelves. Local or organic food products tend to not come in sustainable packaging. It is more likely to see the use of plastic bags or 'monstrous hybrids', packets made of materials that are biodegradable and recyclable resulting in a product that is impossible to have no impacts at the end of its lifecycle, (McDonough et al., 2010) which has no connection to local culture and negative

environmental impact. We wanted to try to harness the communicative power of packaging to promote a new material culture tied to the principles of sustainability.

Methodology

The design process model chosen was that of Ulrich's which decomposes the design process into four steps: sense gap, define problem, explore alternatives and select plan (Ulrich, 2011). In this case study these steps were roughly followed, allowing for some adaptations had to be made. This was one of many possible candidates. It was chosen for its ability to be easily communicable to, and graspable by those involved in assessing the packaging project and those who were to evaluate the prototype packaging artifact. In this way it was to indirectly contribute to the understanding of whether, what and how sustainability meanings were created.

Sense the gap

The packaging design activity began with the 'perception of the gap' in the consumer understanding and experience of packaging. The designers approached food packaging holistically and noted various problematic situations ('gaps') that could be improved.

As an example, it was established that protected local food products, that is, those designated as PGI (Protected Geographical Indication) are not always packed in sustainable packaging which leads to a lack of meaning and experience for the consumer. In addition to this, a number of problems associated with packaging of local food products were identified, some of which were:

- Economic issues such as small scale production and lack of resources for packaging acting only as the means to protect and transport the product
- Greek culture being represented badly or not at all by Greek product packaging
- Consumers being bored by the 'sameness' of product packaging

While it is clear that a food product packaging cannot in itself be the solution to these problems but design for sustainability as a holistic approach can help designers recognize issues in the economy, society and environment where products are situated, and attempt to propose sustainable alternatives.

Define problem

To this step belongs the identification of consumer needs and the goal definition. Six design principles were developed in order to understand what designer wants to achieve through the packaging. These were expressed in such a way that they can be used in all development phases. These design principles were visualised in a hexagonal scheme and would become the design criteria for the final design evaluation.

Exploring needs

Firstly, consumers need to be persuaded of the product's quality and benefits before they purchase it. In this phase packaging plays a major role of communicating the product's and producer's values and the facts that makes this specific product unique.

Economic issues in sustainability theory are equally related to practical, social and personal meaning. This calls for packaging sustainably designed, i.e. a design with minimal environmental impacts; locally produced using available materials and human resources; endowed with elements that responding to people's personal values and ethics (Santamaria et al., 2015).

Greek culture is many times not represented by design attempts in food packaging. Consumers tend to want both their country's history and culture represented. Culture is not only based in historical facts but also core ethics and habits in lifestyle and this has to be communicated by the packaging. Fostering and communicating culture is an aspect of sustainability associated with locality.

Consumers want proof of authenticity. They are surrounded by a plethora of products and they want and need to recognize which ones are authentic and unique in what they offer in terms of experience that is not available in other products (Schwartz, 2004). Sustainable packaging design can act as a very effective strategy for differentiation. Furthermore, it encourages consumers to become more selective. They buy products that represent and match their personality. Packaging could have an additional functionality, to become something that the consumer would become attached to regardless of the product inside the packaging.

Project goal

In the literature on packaging design, packaging is variously seen as a means to communicate branding; entrepreneurial values; product characteristics and properties. Our process of creating packaging artifact proposes communicating product characteristics and information, but also the values of sustainability.

Design projects treating wicked problems utilise 'quasi-subject matter' (Buchanan, 1992), meaning that the design team has to form the boundaries of the problem. Here, six packaging design principles were adopted as a means to tackle the problem space in a holistic way, allowing as well for the interactions between them to be taken into account during the decision making process. In this case the chosen principles were:

Communicating values of Sustainability: The proposed packaging must communicate, highlight and embody the values of sustainability by referring implicitly to practical, social and personal meaning. The designer should not be pedantic about sustainability but find a way that the final packaging design shifts from consumerism discourse to the sustainability discourse (Santamaria 2015).

Locality: The design proposal must make use of the locally available, raw materials, have small and controlled production and give alternatives. It should embrace local culture and

aesthetics in a more honest and natural way. It is important that the packaging production depends on local human resources that are flexible and skilful.

Consumer's behavioural change: In the context of sustainability there is a need for packaging design that creates a steady, heartfelt relationship with the consumer, a two-way relationship which reduces environmental waste and promotes reuse. Fostering this type of relationship with packaging can encourage consumers to make more conscious and authentic choices.

Design balanced between visual and information elements: Guidelines of information design on packaging remind the designer that information is not only about graphic design. Designers should decide what to visualise and what to present as text. The final design proposal will disseminate local values (social meaning) and promote authenticity (personal meaning) but also display the necessary food information (practical meaning). Consumers should be able to find the information they need although packaging elements are designed harmoniously. In this holistic approach the designer combines cognitive, sensory and aesthetics values. The materials chosen are also a very important part of the process as tacit knowledge will be created by their embodied properties. Materials are the basis of the experience of both designers and the final user/consumer and in this sense material selection is a quintessential part of customer experience in the context of packaging design for sustainability.

Packaging as an experience: Design creates emotions and mediates an experience with the consumer before they reach the product enclosed in the packet. Attention to the packaging's functionality so that is more friendly and easy to use and interact with. Semantics and Semiotics help with packaging form, material and textures in order to trigger senses.

Highlight cultural characteristics: Packaging should highlight local, unique and authentic elements of the product's culture and satisfy consumers seeking authenticity. It can be connected with tourism and visitors hoping to experience something unusual. They could buy it and include it into their everyday life, to bring back holiday memories. At the same time, the final design should make the product competitive and also provide a clear picture of the product's origins.

The six Packaging Design Principles are visualised by using these principles as dimensions in a hexagonal polygon. The degree of integration of each principle is expressed as a number from one to ten and then is used to define each point of the polygon. This visualisation gives us the clue that the angles of the shape show us how inclusive of all principles the frameworks is, a more rounded shape means that all principles are considered to a similar the same degree (Bofylatos et al., 2012).

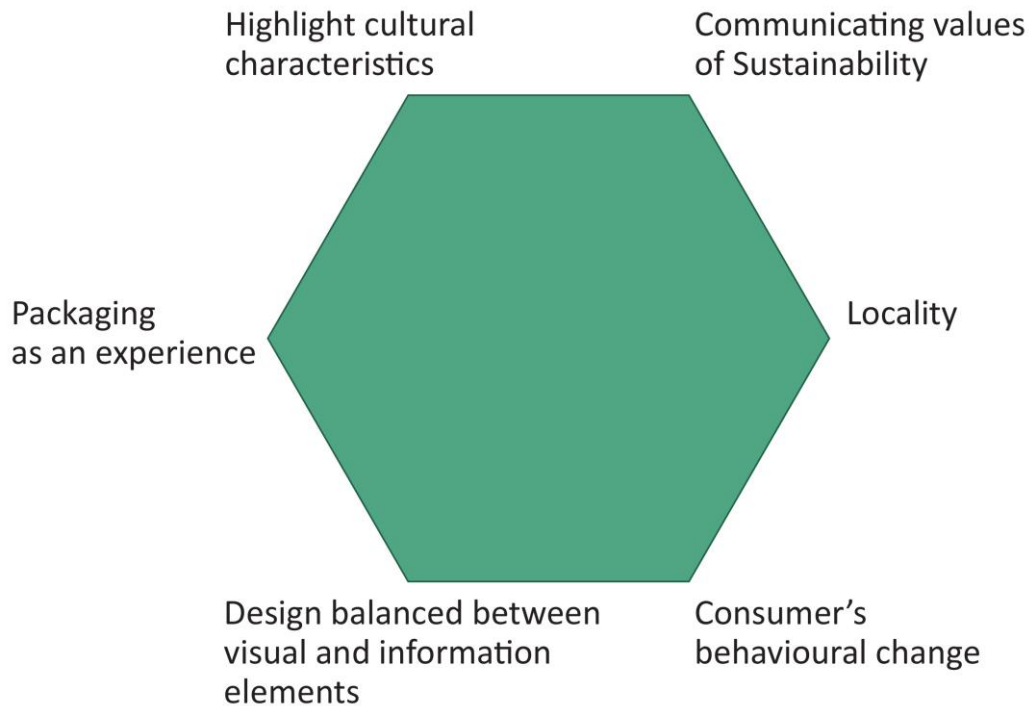


Figure 1 Six Packaging Design Principles visualised in hexagonal model

Explore alternatives

Given the principles, research was made in several scientific fields (sustainability, information design, marketing, management, product design, and semiotics) in order to select those best practices that would be useful and enlightening in designing food packaging that would communicate sustainable values, while information design was helpful for ways to communicate those values.

Design steps

Information about the product was collected, as well as existing packaging types. A collection of some of these is shown below in Fig 2.



Figure 2 Aesthetics inspiration

Select plan

In this project, which was carried out for research purposes, the design for the packaging artifact embodies bibliographic conclusions, tacit knowledge and values of sustainability. The artifact was not targeted to a specific customer (producer, manufacturer) but acted as a vehicle of exploration of sustainability and information design in packaging.

Consequently the graphics (logo, label, information card) and visual elements were designed as well as a prototype packaging. This included choosing the materials and testing the relationship between graphical and physical elements. After several iterations of combining all the elements, improvements were made in order to create a more realistic and self-explanatory artifact in the sense that it should not only embody the values behind the product but the necessary information as well. The final design is a propositional artifact that aims at to compiling all levels of meaning into one entity.

The designed logo indicates the meaning of small sack (Greek tr. 'tsouvalaki') which is used by farmers to carry pulses in open markets so that consumers may buy in bulk and remains simple to avoid overshadowing the whole front label. Fonts that give the sense of handmade packet have been chosen for the rest of the label. The circular label on the side acts as a reminder of reusability and confirms that this material is the appropriate to store

pulses. It also gives the main information about the product inside which is its actual size and what it looks like, due to the opaque material of the packaging.



Figure 3 "Tsouvalaki" packaging

On the first page of the information card the required information is presented. Inside the brochure information has been organized in the form of questions that trigger consumer to read and also with symbols and visualisations to reduce text and make information easier to remember. At this stage information is provided about the environmental benefits of beans cultivation; the dependency on workers and traditional cultivation techniques and the nutritional value of the product. In addition information about the properties of beans: pulses in general: and about the region of cultivation and its uniqueness (note: the Prespa Lakes have been a National Park since 1974). On the last page a simple but traditional recipe is presented to help consumers enjoy the product.

Evaluation

Design quality is derived from how well the artifact satisfies user needs, and thereby closes the perceptual gap in the user experience. Evaluation using a focus group of potential buyers was made after it was explained to them what the six design principles stand for. The hypothesis made was that participants would like to buy the product and gift it to a friend of another nationality, living abroad. Five people participated in a session of thirty minutes. Their ages spanned from 21 to 55 years old and they had no practical knowledge of design. The designer extensively explained the six principles of packaging design and then asked the participants to grade the artifact on their perceived fulfilment of each design principle. The

evaluation was carried out through a semi structured interview using the following base questions:

- Are sustainability values illustrated through packaging?
- Do you believe that locality is promoted?
- Would you search for this kind of information and be more conscious of your choice next time you have to select food products?
- Do you think the information is well presented and organised?
- Do you find this packaging functional and/or appealing to the senses?
- Do you believe that cultural characteristics are adequately presented?

The grades' average forms the hexagon in the following figure. The hexagonal model helped the designers to understand which of the principles had been successfully communicated and which aspects could be improved.

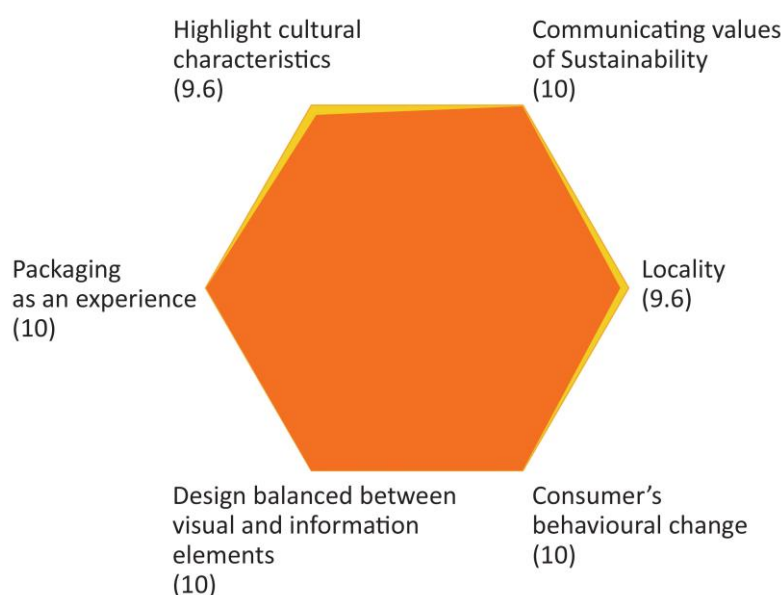


Figure 4 Average grades visualised in hexagonal model

The evaluation study also gathered qualitative comments from the participants while they were interviewed. Participants commented on the new spiritual dimension of packaging, they were enthusiastic about some details on packaging but also they proposed some improvements of the elements they did not like. In the table below are comments as expressed by participants.

This evaluation is considered as part of this case study in design packaging. At this stage, there was a need to see the reflection of our ideas and of the artifact on other people. The goal was not to make an evaluation of the final product. Feedback was needed right in this stage in order to make conclusions for the research and the design stage.

	Interesting details	Improvements proposed	General issues
"TSOUVALAKI"	<ul style="list-style-type: none"> • use of natural, biodegradable materials • portable and useful for storage • reflects the use of product, packaging full and stretched when bought and lighter and loose after some of the product inside is used. 	<ul style="list-style-type: none"> • logo more connected to the region of cultivation (Prespa Lakes) 	<ul style="list-style-type: none"> • bonding with packaging, product and culture that conveys, expropriation • packaging implementation depending on people and collaboration • materials prepossess reuse • trigger senses • promotion of locality and preference for local products • promotion of fair trade and sustainability • co-creation of a contemporary "Greekness" (Yagou, 2012) • "educational" way of presented information showing values in general (nutritional, environmental, aesthetical) • experience in many levels (materials' originality, "educational" information, presentation and reading, potential reuse)

Figure 5 Participants' comments

Conclusions and discussion

The paper presents a case study using the four layer of abstraction model MSSR in the context of packaging. Using this model we were able to realise and design for different modes of communication aiming to engage in a dialogue leading to the emergence of new meaning about sustainability. This was done by designing all three aspects, the brand, the information and the physical aspect of the product in an entwined way. The emerging discipline of food design in conjunction with the ever growing demand for a shift towards sustainable lifestyles calls for a radical redesign of packaging, a very environmentally intense resource. The holistic approach adopted in this study illustrates how different semiotic layers of packaging can be designed to communicate a more robust and diverse message to the consumer aiming to promote sustainable lifestyles, wellbeing and behavioural change. In addition to information design and communication, craft plays an important role as the product created through this process is more closely tied with the sustainability discourse than its mass produced counterparts.

As far as the final designed artifact, the potential consumers regarded packaging as innovative and thought aspects of sustainability, locality and behavioural change were very significant and useful. They expressed comfort with familiar traditional cues for the participants and pleasure with the packaging because of its material, rich culture and value of reuse. There was some difficulty in understanding the meaning of the “locality” and “packaging as an experience” design principles because of the unfamiliarity with these notions and their meanings in design. Overall, a wealth of remarks on general issues demonstrated that consumers were well aware of the communicative and evocative power of packaging and would respond to meanings and discourses around sustainability when suitably stimulated.

This paper reinforces the need for literature research and cognitive tools use in tangible design such as packaging. We acknowledge the aid of Information design beyond the graphical aspects of package labelling in the rest of its elements and attributes. We consider a very wide range of information that needed to be presented and made informed decisions about what will transform to visual or tangible elements. Adopting a craft-oriented approach added a further layer of complexity to the process of selecting appropriate materials, firstly due to locality and secondly through the integration of tacit knowledge and dialectics with the material and its properties and finally by being recognized as the basis of the packaging experience. The same can be said about material studies, branding and visual myth theory and other cognitive constructs used.

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Towards a sensory congruent beer bottle: Consumer associations between beer brands, flavours, and bottle designs

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Abstract: Sensory packaging design congruent with product and brand characteristics may be used as an innovative tool to communicate product and brand values to consumers and to enhance taste experience. This study investigated whether consumers associate sensory properties of beer bottles with certain brand values and beer flavours. Participants evaluated five beer products on a list of brand values, flavour characteristics and package characteristics. The results demonstrated that consumers systematically associate tactile and auditory characteristics of a bottle with certain brand values and specific beer flavours. The study creates a conceptual tool for designing brand congruent multisensory beer bottles.

Keywords: Multisensory packaging, sensory congruence, brand values, beer bottle

Introduction

The importance of multisensory experience (i.e., the engagement of multiple senses) in developing positive product and brand evaluation is increasingly recognized (e.g., Lindstrom, 2005; Krishna, 2012). Multisensory experience is facilitated by multisensory integration, which occurs when the information from several senses is congruent (Schifferstein & Spence, 2007). Congruence refers to the degree of fit among sensory characteristics of a product (Bone & Ellen, 1999; Peracchio & Tybout, 1996).

People intuitively develop cross-modal associations, the tendency for a sensory stimulus in one modality to be associated with a sensory stimulus in another sensory modality (Parise & Spence, 2013). These associations raise consumer expectations about which combinations of stimuli tend to co-occur. For example, red colour is associated with sweet scent, while green



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colour is associated with fresh scent (Garber, Hyatt, & Starr, 2001). Therefore, consumers expect perfume in a red packaging to have a sweet scent and perfume in a green packaging to have a fresh scent (Scharf & Volkmer, 2000).

Cross-modal associations could be naturally present when stimuli share basic dimensions of sensory experience (Keetels & Vroomen, 2011) or can be learned through repeated exposure to certain stimuli in certain contexts (Krishna, Elder & Caldara, 2010). For example, many people associate a citrus scent with cleaning behaviour from repeated exposure to a citrus scenting detergent (Holland, Hendriks & Aarts, 2005).

Multisensory packaging

Sensory characteristics of the packaging may create certain product expectations and enhance the actual consumer experience. Researchers have demonstrated that packaging colours and shape can change the consumers' perception of the product within (Spence & Piqueras-Fizman, 2012). For instance, people match carbonated water with angular shapes and still water with round shapes (Spence & Gallace, 2011). Furthermore, people match dark chocolate with angular shapes and milk chocolate with rounded shapes (Ngo, Misra & Spence, 2011).

When sensory packaging characteristics are congruent with product or brand attributes, multisensory integration is facilitated, resulting in a more positive consumer experience. For example, soft drink 7-Up was evaluated as tasting better when yellow was added to the original green of the cans (Hine, 1995). Potato chips were perceived as crispier when the packaging made a noisier rustling sound (Spence, Shankar, & Blumenthal, 2011). The taste of water was evaluated higher when it was served in a firm rather than a flimsy cup (Krishna & Morrin, 2008). Thus, multisensory packages that match product characteristics create a more positive product experience (Schifferstein & Spence, 2007).

Brand values can also be congruent with certain sensory stimuli. Brands position themselves by communicating their values (i.e., the attributes they stand for) to the target group (Meffert, Burmann & Kirchgeorg, 2008). For example, masculinity and femininity are known brand values used to position a brand (Grohmann, 2009). Smooth paper congruent with femininity was evaluated more positively when a feminine smell was present, while a masculine smell led to more positive evaluations of rough paper congruent with masculinity (Krishna et al., 2010). Therefore, a female perfume brand is perceived as more feminine and evaluated more positively in a smooth packaging, while a male perfume brand is perceived as more masculine and evaluated more positively in a rough packaging.

Research objective

While the number of studies into the effects of sensory package characteristics on taste expectations is growing (see Piqueras-Fizman & Spence, 2015 for a review), less attention is paid to the effects of package design on brand experience (Meffert et al., 2008). Surprisingly, no attempts at all have been made to study the three-way interactions between the sensory elements in package design, brand experience and taste expectations. Therefore, with this

study we aim to close this gap by investigating consumer associations between sensory characteristics of a package (beer bottle), brand values and taste expectation. The study can serve as the first step in designing a brand-congruent multisensory beer bottle.

Method

Participants

Dutch participants (N=42; 21 men) were recruited via *Facebook* social network. The age varied from 18 to 56 years, mean age was 27 (SD = 9.4). The sample was higher educated compared to the general population (52,3% possessed a university degree; 26,2% completed a higher professional education; 9,5% had a secondary professional degree and 12% had a high school diploma). The majority of participants were regular consumers of beer: 57,1% consumed beer on a weekly basis; 21,4% monthly; 14,3% a few times a year; and 7,2% never drank beer.

Stimuli

Five pictures of distinctive beer bottles from existing foreign brands (Russian, Bulgarian, US and two Brazilian brands), unfamiliar to the target population, were presented to participants (see Figure 1). Participants' familiarity with the selected brands was further controlled with the questionnaire.

Measures

Verbal descriptions of brand values were extracted from the brand manuals of 32 beer brands across the world. The 27 brand values, which were claimed by two or more brands, were used in the survey (e.g., *modern, social, fun, energizing, young, reliable, fresh*, etc.). Taste descriptors that are used to describe pilsners were derived from a variety of beer brands (N=29). The 15 taste descriptors, which were claimed by two or more beer brands, were used in the survey (e.g., *slightly bitter, refreshing, full-bodied, crispy, smooth*, etc.). In addition, 6 smell descriptors used to describe the beer aroma were included in the survey. Participants evaluated each of the five beer bottles on the 27 brand values on a 7-point Likert scale (from 1 'strongly disagree' to 7 'strongly agree'), taste and smell expectations for these products on a 7-point Likert scale (from 1 'strongly disagree' to 7 'strongly agree'). They also evaluated their tactile and auditory expectations of the bottles on 5 tactile and 4 auditory attributes on 7-point bipolar scales (such as *warm/cold, hard/soft, loud/quiet*, etc.).



Figure 1 Beer bottles presented to participants. Starting left: Baltika Cooler(Russia), Bohemia (Brazil), Brahma (Brazil), Bud Light (USA) and Kamenitza (Bulgaria).

Procedure

Participants completed an online survey at home. The data were collected using ThesisTools online survey tool. Participants clicked on a link that directed them to the online survey. To comply with ethical regulations, they first stated their age and confirmed that no individuals younger than 18 were present in the room at the time of the survey. After answering demographic questions, participants were presented with the picture of the first foreign beer bottle. Participants indicated if they were familiar with the brand presented to them and if they had consumed this product before. Only a handful of participants indicated that they had previous knowledge about one of the brands, ranging between five respondents who were familiar with Bud Light to one who was familiar with Kamenitza. Thereafter, participants evaluated the beer bottle on the list of statements about the brand values, tactile and auditory characteristics of a bottle and their taste expectations. The questions were repeated for the other four brands. The order of the presentation was randomized between participants. The survey took approximately 20 minutes per participant.

Results

A Principal Components Analysis (PCA) with Varimax rotation was conducted on the brand value data to identify underlying brand dimensions. The analysis resulted in a 6 components solution accounting for 75% of the variance (see Table 1). The components were labelled as (1) dynamism; (2) excellence; (3) authenticity; (4) accessibility; (5) authority; and (6) uniqueness. For each brand value dimension the mean score was computed.

Subsequently, a multiple regression analysis (MRA) was conducted to establish correlations between the brand value scores and tactile, auditory, olfactory and taste attributes. The conventions of Cohen (1988) were used to interpret the value of the correlations: $r = .10$ was interpreted as a small effect, $r = .30$ as a medium effect and $r = .50$ as a large effect. Table 2 presents the significant correlations between the six brand value dimensions, beer taste and smell descriptions and sensory package characteristics.

Table 1 Rotated component matrix with loadings and cumulative variances

	Component					
	1 dynamism	2 excellence	3 authenticity	4 accessibility	5 authority	6 uniqueness
Energizing	.87					
Young	.86					
Fun	.79					
Fresh	.78					
Modern	.77					
Relaxed	.56					
Quality		.84				
Passionate		.78				
Prestige		.75				
Reliable		.72				
Premium		.62				
Successful		.60				
National pride			.83			
Authentic			.72			
Traditional			.68			
Hospitable				.85		
Friendly				.77		
Self-conscious					.79	
Bold					.72	
Masculine					.62	
Original						.75
Distinctive						.54
Cumulative % variance	35.36	56.29	62.51	67.56	71.56	75.34

Table 2 Correlations between the brand value dimensions and sensory attributes

		Brand values					
Sensory modality		Dynamism	Excellence	Authenticity	Accessibility	Authority	Uniqueness
Touch	Cold/warm	-.20*	-.17*				
	Flimsy/firm		.36**	.43**		.30**	
	Soft/hard	-.20*		.27**		.20*	
	Smooth/rough						-.20*
	Light/heavy	-.34**	.18*	.33**	-.17*	.33**	
Sound	Opening (quiet/loud)	-.17*	.19*	.24**		.23**	
	Carbonation (weak/strong)		.21*			.27**	.24**
Smell	Fruity	.37**			.26**		
	Floral	.23**			.18*		
	Spicy	-.17*		.27**		.23**	
	Sweet	.28**			.17*		
	Bitter	-.24**	.39**	.45**		.34**	
	Intense		.62**	.56**	.20*	.61**	.42**
	Subtle	.37**			.25**		
Taste	Bitter	-.24**	.40**	.45**		.48**	.19*
	Refreshing	.63**	.32**		.31**	.30**	.40**
	Full-bodied		.61**	.57**	.18*	.61**	.37**
	Smooth	.38**			.46**		.25**
	Crispy					.21*	
	Foamy		.19*			.23**	.20*
	Easy to drink	.52**		-.18*	.40**		.17*
	Light	.46**	-.22**	-.44**	.27**	-.23**	
	Natural		.31**	.27*	.41**		.24**
	Mild	.32**		-.22	.18*		
	Thirst-quenching	.44**	.28**		.43**	.23**	.23**
	Sweet	.42**		-.30**	.22**		
	Tingly				.19*		
	Watery	.18*	-.53**	-.46**		-.49**	-.28**
	Sharp	-.21*	.26**	.33**		.26**	

Note: * Correlation is significant at .05 level; ** Correlation is significant at .01 level; N=140.

The results demonstrate a clear pattern of semantic congruence between sensory characteristics of bottles, brand values, and taste expectations of beer. Brands representing *excellence*, *authenticity* and *authority* show similar pattern of associations with sensory package characteristics, indicating congruence with firm and heavy packages, loud opening sound and strong carbonation sound. *Dynamic* and *accessible* brands are associated with the opposite package characteristics, i.e., light packages and quiet opening sound. These two groups of brand values also show different patterns of taste expectations. Brands representing *excellence*, *authenticity* and *authority* are associated with intense bitter smell and full-bodied bitter taste, while *dynamic* and *accessible* brands are associated with subtle, sweet, fruity and floral smells and smooth, light and easy to drink taste.

Discussion

The study has demonstrated that consumers systematically associate sensory characteristics of beer bottles with certain brand values and specific taste expectations.

In our study brand values were structured in six groups that share one of the six underlying dimensions: *dynamism*, *excellence*, *authenticity*, *accessibility*, *authority* and *uniqueness*. Our results suggest that sensory packaging design would be especially useful to differentiate brands that represent *excellence*, *authenticity*, and *authority* from *dynamic* and *accessible* brands. Weight, texture and an opening sound of a bottle are especially promising sensory characteristics that can be implemented in a brand-congruent multisensory packaging to communicate specific brand values and reinforce taste expectations.

The congruence between brand value of *excellence* and heavy and firm packaging is in line with previous findings, where heaviness and firmness were found to be associated with high quality, while lightness and flimsiness were found to be associated with lower quality (Krishna & Morrin, 2008; Lindstrom, 2005; Piqueras-Fiszman & Spence, 2011). Moreover, *dynamic* and *accessible* brands were associated with quiet sounds, while brand values of *excellence*, *authenticity*, and *authority* were associated with loud sounds. These results contribute to the growing body of research on product-sound associations (Parise & Spence, 2009; Spence, 2012; Spence & Gallace, 2011; Spence, Shankar, & Blumenthal, 2011; Yorkston & Menon, 2004;).

Our data has demonstrated that consumers perceive certain sensory attributes of a package as congruent and other attributes as incongruent with specific brand values. We suggest that in designing product packages, it is important to use sensory characteristics that are congruent with brand values. A brand-congruent packaging design may enhance consumer experience. Congruent stimuli are generally evaluated more positively, because fast and effortless processing of these stimuli is experienced as more pleasant (Gottfried & Dolan, 2003; Lee & Labroo, 2004). Moreover, people like products (e.g., food and drinks) more, when the products are predictable and confirm their expectations (Cardello, 1994; Deliza & MacFie, 1997; Meyers-Levy & Tybout, 1989). Sensory congruence helps to set realistic

expectations among consumers, which makes products more predictable and more enjoyable.

Our study was the first attempt to systematically investigate three-way relationships between brand values, sensory package characteristics and product expectations. It makes the first step in transforming abstract brand concepts into concrete consumer experiences with the help of sensory packaging design. The study was performed in the area of beer brands, but may have practical implications for other fast-moving consumer goods that are known to depend heavily on the perceived brand properties (Schmitt & Simonson, 1997). Adding new multisensory dimensions to consumer experience enables brands to compete for consumer attention and loyalty (Pine & Gilmore, 1999;). Our results can help designers and brand managers to select sensory package characteristics that reflect their brand values and help to create a more pleasurable consumer experience.

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SECTION 23

OBJECTS, PRACTICES, EXPERIENCES AND NETWORKS

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Introduction: Objects, Practices, Experiences and Networks

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The purpose of the OPEN Special Interest Group of DRS is to facilitate productive engagement between Design research and fields in the humanities and social sciences that have a relationship to it. This relationship may go in either direction. Design often looks to other fields as a source of theoretical ‘frames’ for thinking through processes and their relationship to abstractions like ‘society’ or ‘the environment’. Design and its processes and products are themselves of interest to some fields – from Design History to Human Computer Interaction. The words that make up the title are intended to indicate some of the most potent of these relationships.

‘**Objects**’ immediately implies ‘subjects’ and points towards debates about the mutual constitution of both. For example, this mutuality connects design to debates that have appeared in archaeology as part of a broader ‘material turn’ across a whole range of disciplines in the last quarter century (See Olsen 2010). This has played out in a focus on materiality and ‘object ontologies’, which can be a little bemusing from the perspective of design, where our practices and research conventions are nothing if not materially engaged, focussed obsessively on objects and, in the case of craft practices, thoroughly embodied. The Cartesian material/ ideal split does not sit easily over Design, and we can gain greater insights into what it is we do from these debates that question it. From the perspective of research, and particularly ‘practice based’ research, this is especially the case where these writers engage with matters of cognition – how we know what we know (Malafouris, 2004, 2013).

The senses the SiG has of ‘**Practices**’ go both towards Design, and away from it. While the practice of designing is relevant to the SiG, the use of the ‘practice’ in sociology may have more potential to bring about that productive engagement with design research. Theories of ‘social practice’ (Reckwitz, 2002) offer Design non-reductive ways of engaging with the consequences of designing. The insights that a social practice approach provides offers



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useful ways to see how material engagements play out in the social world (Shove 2003) and designing itself has been a significant element in sociological accounts of these engagements (Shove et al 2007).

The relationship of material things to human beings has led a number of writers, from different perspectives, to focus on the '**Experiences**' that are in play in those relationships. The broadest categories of material things have been treated in this way: 'cloth' (Weiner and Schneider, 1991), 'technology' (McCarthy and Wright 2004). Again, as well as pointing towards frames for thinking about design's products, outwith Design, 'experience' has been a focus for work within it. Although open to critique for relatively narrow and instrumental focus of 'experience design', it does at least emphasise the human dimension of our material relationships. Also, the processes of design and of design research are themselves thoroughly experiential.

As a keyword in the human sciences and humanities, '**Network**' has both a generalised relationship to the themes of relationality mentioned above and a specific reference to the work of Bruno Latour. His 'actor-network' acknowledges the agency in both humans and 'non-humans' and offers a way to understand objects beyond their representational and symbolic properties. This makes room for a way of thinking about designing as a materially engaged practice that is consequential beyond its role as a meaning-maker, emphasising its potential to be a 'social intermediary' (Latour, 2005). Thinking of designing from the perspective of the actor-network, makes it possible to understand the degree to which it is *both* a 'subaltern' practice (as Clive Dilnot notes), a medium or 'mediator' for the social, and has agency in itself, especially when engaged at an ethical register.

Latour's work originated in studies of science, arguing that science presents as facts what are in fact constructions (1979). Latterly, he has moved from the apparent relativism of this position to a focus on 'matters of concern' (2004), asking "Can we devise another powerful descriptive tool that deals this time with matters of concern and whose import then will no longer be to debunk but to protect and to care?" (2004: 232). The work of the OPENSIG in recent years has coalesced round precisely such matters of concern and a desire to protect and care, which echoes the intention of DRS2016 to use the conference to pose the question "How can design research shape our lives in more responsible, meaningful, and open ways?"

This orientation for the SiG has resulted in a book, *Tricky Design: the ethics of Things* due out in 2016¹, which brings together contributions from design and other fields around the compromised and compromising situation that design occupies in respect of the ethics of its consequences. Seeing Design this way, as a shape-shifting, indeterminate discipline with a 'tricky' identity, makes it a complex matter to discern an appropriate scope for its 'matters of concern'. The use of the word 'thing' in the book's title connects it to ideas that feature very prominently in the philosophy of technology since Heidegger (1971) and in the work that follows him, such as the Science Studies initiated by Latour and others.

¹ Fisher, Tom, and Lorraine Gamman, eds (2016) *Tricky Design: the ethics of Things*, London: Bloomsbury

Objects, Practices, Experiences and Networks are all concepts that point towards the way human and non-human entities come together into *things* that are bound up with matters of concern. Design is deeply implicated in this gathering of forces of agency, and given the orientation of DRS2016 to 'responsible, meaningful and open' design research, its distinctive contribution is, arguably, to help to reconcile them. To begin to see how this reconciliation might take place, it is worth dwelling for a moment on the concept of the *thing* to which this discussion refers.

In an article of 2001, Bill Brown proposes a *Thing Theory*, from the point of view of the critical study of culture, or Cultural Studies. For Brown, as for Heidegger, *things* are different from *objects*, though the distinction is subtle and complex, and to sum it up is inevitably to miss some of that subtlety and complexity. Brown tries to capture the sense of *things* being 'out of language' that Latour gives (2004: 233) by referring to way the Surrealist poet, Francis Ponge, engages obsessively with specific mundane objects, doorknobs, 'figs, crates, black-berries, stoves, water', but always overshadowed by lurking *things*... As Brown puts it, 'the word designates the concrete yet ambiguous within the everyday' (2001:4).

Objects implicitly define subjects, they are known, closed, concrete, determinate, discrete, full of meaning, 'industrial', 'technical'. The etymology of *thing* gives it a quite different sense – related to the Norse word for 'gathering'. The Icelandic parliament is still called the Althing and this sense of *thing* is anything but discrete and determinate, rather it is a site, a place for formulating and re-formulating views of right action, which sounds a little like Design. As Latour puts it: 'A thing is, in one sense, an object out there and, in another sense, an issue very much in there, at any rate, a gathering' (2003: 233) that can encompass both 'matters of fact' and 'matters of concern'.

The circulation past the familiar object into the unfamiliar *thing* that is implied by this discussion resonates with some qualities of design, particularly research processes that are not directed to concrete, instrumental ends, but are open, focused on re-casting relations between people, and between people and what Latour calls 'non-humans'. For design the neat distinction between subject and object breaks down because the subject, the designer, is in the object and the subject changes the object. The relationality of objects is consequently more obvious from the point of view of designing, than it is in everyday life, when objects are means, or signs or values which may be compelling, but are relatively static.

Brown sums up the move required to get from (not) seeing an object to perceiving a thing in a passage that is reminiscent of Heidegger's principles of 'ready to hand' and 'present at hand', differentiated by Graham Harman as 'categorical' or 'existential' (2002: 38):

"We begin to confront the thingness of objects when the windows get filthy, when their flow within the circuits of production and distribution, consumption and exhibition, has been arrested, however momentarily. The story of objects asserting themselves as things then, is the story of a changed relation to the human subject and thus the story of how the thing really names less an object than a particular subject-object relation." (Brown, 2001:4)

Things then, are objects that seem to be one thing but are actually another, and this quite accurately characterises all the five papers in this OPEN session for DRS2016. They engage in varying degrees with the ‘mysterious and intuitive’ at the heart of design (McDonnell: 109). They also throw up questions about Herbert Simon’s famous definition of Design, which stresses transformation based on preference (1996: 111). Huppertz recently noted that this formulation of design represses ‘judgement, intuition, experience and social interaction’ (2015: 29) as well as accepting that the preference in question will always be determined by others’ – institutional or corporate – interests. This may be the case for the ‘subaltern’ designer, but Design Research should be a reserve territory, where designers can capitalise on their privileged ability to move their attention from objects to things.

To take advantage of this reserve territory, the OPENSIG call for papers for DRS2016 invited responses to relationships as follows:

between designing and norms, expectations of right conduct

between designing and political formations, local and global

designing as the gathering of relationships in ‘things’ - material, immaterial, actual and fictional

The modest number of papers that came forward in response to the call perhaps confirms that design tends to take a subaltern position, but the inventiveness and perspicacity of the authors in interpreting the call is not in doubt. In all five cases, the papers show that Design’s inheritance from the modernist avant garde, though perhaps rather tenuous in many instances is nonetheless intact. Design can ‘de-familiarize’, it can ‘make strange’ the everyday, turning objects into *things* that seem to be one thing but are another. In the selection of papers we hear not only about a research process, but about inter-species bee work; not just a better app but an implicit critique of the new ‘sharing economy’; not simply clothing design for a target market but an co-design engagement with stereotypes about older women; not design for the old but a new ontology for technology. These are clear matters of concern that require going against the grain of contemporary consumption, challenging anthropocentrism and at least opening up, if not considering the ethics of new designs of service.

So Deborah Maxwell, Liz Edwards, Toby Pillatt and Niamh Downing offer us ‘Stories in a Bee-Spoon’, which although it is an account of an innovative research process, is also much more – this is inter-species work that challenges the human/ non-human dichotomy by focusing squarely on the labour and agency of non-human animals, bees, and one of their products, honey. Michael Mages applies Language-Action theory to a case study of the development of software for UBER drivers, noting that the concerns of the drivers puts them in an unconventional relationship to the development of the software. As Cameron Tonkinwise has put it “Saying Uber & Airbnb are ‘design-driven companies’” = “design is the power to trick people to work against their long term shared interest” (2015). Two papers engage with aging, in very different ways. Katherine Townsend, Ania Sadkowska and Juliana Sissons combine Interpretive Phenomenological Analysis, with the craft of pattern cutting in a co-

design process that is working to re-define the basis on which older women 'fashion' themselves through clothes. This emancipatory mission contradicts both the youth-centric character of fashion and its conventional supply chain, which divides designers from consumers. This shifting of the ontology of fashion is paralleled by the work that Elisa Giaccardi, Lenneke Kuijer and Louis Neven describe about technology for older people, in effect changing the provision from a focus on objects that are 'fool-proof', to one on *things* that constitute a resource with which older people can engage on their own terms. Finally, Jeffrey Chan takes a broad view of the ethics of design in relation to technology, sustainability and responsibility, this last being a motif covered at length by Peter-Paul Verbeek (2005), which begs a whole set of questions about the degree of agency that design has to take a responsible position and the way in whose interests 'being responsible' is characterised.

Things are OPEN.

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Stories in a Beespoon: Exploring Future Folklore through Design

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Abstract: This paper explores the role and potential for design as *process*, *artefact* and *experience* to help frame and address societal problems. We consider this through examining a *future folklore* dialogical object, designed to stimulate conversation and question assumptions. Beekeeping is a particularly rich context with which to adopt this methodological approach, given the significance of global threats to insect pollination aligned with beekeeping's extensive cultural heritage. By drawing on past narratives and contemporary knowledge and practices, the Beespoon, a small copper spoon representing the amount of honey a single bee can make, was codesigned as an experience that actively engaged people with concepts of work, value and pollination. Our design process oscillated across past, present and future stories – the Beespoon as *future folklore* artefact and experience reflects this complexity, operating across time and value systems to provide new ways to think about how we perceive and understand bees.

Keywords: future folklore; codesign; storytelling; objects.

1. Introduction

Design is increasingly recognised as having value outwith traditional product and marketing contexts (Speed & Maxwell, 2015), including economic (Kimbell, 2011), social (Penin et al, 2012) and environmental spheres, in particular the fields of service design and sustainability (e.g. Irwin, 2015). Global societal challenges such as climate change need sustainable societies that “require new design approaches informed by different value sets and knowledge” (Irwin, 2015 p.236).



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One key challenge is that of food security and production. Insect pollination, and the honey bee in particular, has attracted global attention in recent years. The honey bee is critical to pollination and as such has become a powerful symbol rich in cultural history. It has also been shown to operate as an indicator for environmental health (Porrini et al, 2003), this may become a vitally important role when we consider that, according to the British Beekeepers Association (BBKA), “one in three mouthfuls of the food we eat is dependent on pollination at a time when a crisis is threatening the world's honey bees”. Changing agricultural practices, led by a drive for greater efficiency, with a shift to monoculture and, in the UK at least, an overall reduction in hedgerows, has reduced the amount and variety of forage available for pollinators. Additionally, the use of pesticides may have profound implications for the honey bee and other pollinators (Whitehorn et al, 2012), potentially contributing to colony collapse disorder (CCD). Recently proposed UK legislative changes to allow limited use of neonicotinoids (Carrington, 2015) sparked media debate and outrage on social media. This coincides with a surge of popularity for beekeeping in the UK, including the growth of urban beekeeping, where bees can often find a variety of forage more easily than their rural counterparts. Beekeeping itself has changed radically since the advent of the varroa destructor (a parasitic mite), first discovered in the UK in 1990s, with beekeepers now having to adopt more ‘hands on’ management practices to keep varroa in check. These conditions correlate with a rise in new narratives and practices of beekeeping amongst beekeeping communities, for instance, the strict instruction to all aspiring and existing beekeepers to only acquire local bees (to minimise disease spread and ensure hardiness of stock), and to abhor the idea of importing queens from abroad via the internet.

Ways of knowing and learning about beekeeping is likewise changing; no longer is it the norm that farms keep bees, yet urban beekeeping, hive invention (e.g. the Flow Hive (Farquhar, 2015)) and new books about beekeeping proliferate (e.g. Blackiston, 2015; Turnbull, 2011). Beekeepers have to learn and keep up to date with new developments and threats to their colonies. For instance, the Bee Lab Project (Phillips et al. 2014), used an Open Design process with beekeepers to validate, construct and iterate the development of open source hive sensor kits to enable the gathering and sharing of scientific data sensed from hives. We argue that Design, and a Research through Design (RtD) approach can offer a way to think through and reflect on the changing values of beekeeping and knowledge systems.

Through the context of beekeeping, this paper explores an RtD approach that adopted and invited a shifting of lenses across past, present and future stories, looking at the past to understand the present and think about the future. We seek to discover if and how scientific and tacit knowledge of beekeeping might be repackaged into *future folklore*, providing a means to consider future ways of knowing and learning. We begin by outlining our approach and the activities conducted, which included using past and present narratives surrounding the honey bee as the focus for a set of codesign workshops with beekeepers and storytellers. The paper considers one output prototype in detail, the Beespoon – a small copper spoon representing the amount of honey a single bee can make over her lifetime.

The Beespoon is presented as an artefact and an experience that actively engaged people with the concepts of work, value and pollination, inviting reflection on the values associated with the ways in which we perceive and understand bees, as, for instance, symbols of environmental crises, metaphors for human endeavour, or agents for imagining sustainable futures.

2. Context and Methods

The Beespoon that forms the focus for this paper emerged as part of a research project that sought to understand existing and changing knowledge systems of beekeeping in order to begin to imagine and potentially shape future narratives and knowledge systems to aid future generations. The project brought together a multidisciplinary research team (spanning design, HCI, English literature, storytelling and landscape archaeology) to work with Scottish beekeepers and a community project partner (Tay Landscape Partnership). During Summer 2015, data was collated in the form of: literature reviews of archival material on beekeeping management practices and creative texts (e.g. poetry, prose); qualitative interviews with beekeepers across Scotland; and a series of codesign workshops with beekeepers and traditional storytellers in Tayside, Scotland. Project outputs (including the Beespoon) were presented at a local public engagement event (a fruit festival) in October 2015. The following sections present our aims and activities for the project and our approach.

2.1 Stories, Fiction and Folklore

Storytelling is a fundamentally human activity, The stories we fashion about ourselves to make sense of our life experiences are intrinsically linked to our identity, nation, and sense of self (Bruner, 2003; Schank, 1995). They have a profound impact on our lives, encapsulating knowledge, understanding, and teaching (Bettelheim, 1978; Basso, 1996), binding us in our communities and belief systems. Stories can be told for many reasons, to instruct or educate, to uphold existing society or to subvert it, to share and strengthen culture and identity, to aid conflict resolution or simply for entertainment. It is important to be aware however that,

“Stories are surely not innocent: they always have a message, most often so well concealed that even the teller knows not what ax[e] he may be grinding.” (Bruner, 2003, p. 5)

Traditional stories or folktales seek to instruct in one form or another, either through sharing knowledge or skills, or more explicit social expectations, e.g. folktales wrested from their natural context to promote Edwardian morals (Zipes, 1983). Similarly ‘beelore’ reflects the society in which it is embedded, with writers and philosophers from Virgil onwards trying to make sense of the complex, largely hidden workings of the hive by relating it to mythical industriousness and anthropomorphic power structures.

Storytelling culture in Scotland is alive and well in the active recounting of tales told orally, without notes or scripts, each unique telling subtly responding to the situation and listeners. Stories are shared, ownership is fluid – it is said that the only time a story can truly belong to or be owned by an individual is in the telling (Yashinsky, 2004). Yet even that statement is contentious, for it actually belongs to the grouping of listeners and teller as a whole, bound to that instant in time.

Contemporary studies on bees are often considered the province of scientific investigation, such as Karl von Frisch's work on bee communication (von Frisch, 1967), however throughout the later twentieth century and more recently, bees and beekeeping have become popular subjects of non-fiction prose (e.g. Goulson, 2013), artistic design practice and poetry, in part due to pressing environmental crises. For example, Sylvia Plath (2010) and Sean Borodale (2012) have suggestively translated their own experience and knowledge of beekeeping and beekeeping communities into poetic form. Yet bees and beekeeping are steeped in folklore and superstition too, such as the well known 'Telling the Bees', where bee colonies would be told of deaths in their beekeeper's family to prevent them from swarming or getting sick. Another example is that of 'tanging a swarm' by making metallic and/or banging noises to attract a swarm of bees to land nearby.

Our engagement with Scottish beekeepers (through interviews and conversations at workshops) found that these tales are still in common currency in updated forms (e.g. swarms being 'tanged' mid flight by an aircraft's sonic boom), as well as new stories being shared by word of mouth. Oral culture is by its nature mutable (Finnegan, 1977), changing over time to reflect new values and histories, open to interpretation.

A feature of modernity has been the steady replacement of the often highly localised 'pourquoi' or etiological tales (which explain natural phenomena) with universalised, written, scientific explanations. However, studies on oral cultures suggest that folktales and oral histories can encapsulate knowledge and cultural traditions (e.g. Olson & Torrance, 1996; Zipes, 1983) in easily accessible and memorable ways, as evidenced by our interview findings with beekeepers. We posit that design that can embrace ambiguity, fluid ownership; design that can emerge as an "organic phenomenon" (Ben-Amos, 1971) from a specific set of social circumstances, can harness the traits of oral culture and storytelling to consciously seek to become its own form of *future folklore*.

We therefore sought to design prototypes that were open to interpretation and mutation, held in "collective memory" by those who experienced it. How might scientific and tacit knowledge and beekeeping management practice be repackaged into *future folkloric* formats (e.g. metered ballads, artefacts, networked digital media, Internet of Things)? What purpose might they serve for current and future communities? How could we design to encourage agency, allow the story to mutate and design for the 'creators' to lose control of the story?

2.2 Design Approach

In alignment with the multidisciplinary nature of the project, we wanted to bring together a mix of perspectives and experiences, working with not just beekeepers and bee enthusiasts but creative practitioners such as storytellers and designers. We therefore adopted a community driven, codesign (Saunders & Stappers, 2008) approach to dovetail with a Research through Design (RtD) approach to create a space where past, present and futures of beekeeping could be prospected by experts and non-experts, recognising that each participant is “an expert on their own experience.” (Visser et al., 2005, p129)

RtD focuses on knowledge gained through the practice of design and its practitioners recognise making as “a route to discovery.” (Gaver, 2012, p.942) RtD is generative and future focused because of design’s orientation towards what “might be.” (Gaver , 2012, p. 940) It concerns emergent qualities of the “ultimate particular” (Stolterman, 2008) rather than universals and it is consequently highly situated and responsive to particular users. RtD was used because it was anticipated that the iterative, dialogical, and reflective process and the focus on knowledge gained through practice would be particularly appropriate for the project context and future folklore aims. RtD pays attention to the process of creation as well as the designed artefacts and so has the potential to gather knowledge continually through the process of production. Design activities and objects can act as a catalyst for knowledge production and an output of knowledge.

2.3 Research Activities

The Beespoon and wider project’s RtD process can be thought of in three key overlapping stages: 1) *examining the past* through literature review of archival texts and semi-structured interviews with 10 Scottish beekeepers, 2) *bridging the present* through the beekeeper interviews and a set of codesign workshops, and 3) *exploring the future* through the codesign workshops and parallel, iterative research team prototyping. In these ways we were able to develop understandings of both contemporary and past narratives, working with beekeeping communities to consider future narratives.

Examining the past was critical for researcher integration with the community and in informing the second, codesign stage. Future folklore prototypes, including the Beespoon, emerged from these codesign activities, which took place over three 1-day workshops in and around Perth, Scotland, in Summer 2015 (see table 1 for details). Participants were recruited through an open call published online and by personal email invitations. At the start of each workshop, it was noted that the codesigned outputs would be showcased at a local fruit festival for the general public, organised by the project community partner. Participants were encouraged to bring their own experience, skills and concerns to the workshops, increasing the potential for the ideas generated to have maximum impact beyond the project and fruit festival. This facilitated a reciprocity and empowering ethos to the workshops. Creativity and collaboration were openly encouraged throughout the workshops, with participants directed to set aside issues of feasibility.

Table 1. Codesign workshop composition

Workshop 1 Jul-21-2015 Exploring Beelore	Workshop 2 Aug-12-2015 Future Beelore Ideation	Workshop 3 Sep-14-2015 Prototype Refining & Iteration
12 participants	13 participants	12 participants
6 beekeepers	6 beekeepers	10 beekeepers
	7 repeat attendees	6 repeat attendees

The RtD process shifted between open tasks that gave space for wide-ranging conversation and concentrated, directed ideation. Some tasks were designed to elicit information, while others called for imagination and translation through storytelling. The workshops followed a trajectory from past to present and future, focusing initially on the relevance of folklore to today, looking at literature through themes such as swarming, drawing on data gathered from interview and archive research. For example:

“The best time for driving of bees is from the 20th of June to the first of July, because that by this time bees have gathered together some quantity of honey, wheareof some money and profitte may arise to the owner; and likewise from this time till Michaelmass [29th Sept.] they will againe recover and gather together livinge enough and store to keepe them over winter.” (Best, H., & Norcliffe, C. B. (1857). *Rural Economy in Yorkshire in 1641: Being the Farming and Account Books of Henry Best* (Vol. 33). Andrews.)

“A swarm that lands in a neighbour’s property technically becomes their swarm. It would be frowned upon for neighbouring beekeepers to deliberately set bait traps to entice swarms into their own property. (Bait traps in general however are beneficial.)” (Interview observations (paraphrased))

Groups of participants were asked to discuss themes and consider possible stories; tales emerged of:

- bee communication;
- a bee’s first foraging flight, recognising humans and animals, and using bee-vision to find the best nectar sources;
- and the theft of hives full of healing bees.

The second workshop took these stories further, using an active ‘show and tell’ approach through beekeeping paraphernalia (fig. 1) technologies and materials. Through demonstration, the group was introduced to a selection of unfamiliar materials (e.g. conductive ink) to extend awareness of design possibilities and a rapid idea generation technique was used to riff off prompts such as ‘books about bees’ and ‘beekeeper wearing bee suit’. Participants were encouraged to work up some of these ideas using lo-fi prototyping materials (fig. 2).



Figure 1. Workshop 'Show and Tell' explaining the use of a smoker, and a collection of beekeeping equipment. Image credit: authors.



Figure 2. A participant prototype from Workshop 2: a mock up of the Ultimate Bee Experience. Image credit: authors.

Emergent collaborative design ideas included the Ultimate Bee Experience (a multi-million pound visitor centre), a video virtual hive (with each video frame in the hive box revealing a different type of management practice or colony) and a sound space with digital remastering

of bee sounds (where you could produce music with bee noises, as well as soundscapes of bees: the gentle humming of happy bees, evening fanning of wings, raised or angry buzzing, and queens piping). The conductive ink demonstration sparked interest in creating tactile experiences to communicate knowledge about bee behaviour and bee sounds through bee-keeping equipment.

In between each workshop the research team reflected on outputs and ideas, working them up as feasible and appropriate for the next workshop in the series. Consequently, the third and final workshop demonstrated early stage working, mocked up prototypes for feedback from participants. The Beespoon was one example. The final output for the codesign stage was a demonstration of project ideas at a public engagement event run by the project's community partner. This one-day fruit festival took place in Perth, Scotland in October 2015 and was a free public event to increase awareness about heritage apples in the area and the importance of pollinators. Local and national beekeeping associations had a significant presence alongside cooking with fruit demonstrations, storytelling, face painting, and apple pressing.

The approach adopted created a design space to share knowledge between groups in the workshops, functioning as a pop-up, temporary community of interest. This enabled cross-pollination of ideas between people from different backgrounds in order to re-present the past and present, but also to establish a space for imagination where futures may be considered.

3. The Beespoon

One prototype created through the codesign process was the Beespoon, a small copper spoon that holds one twelfth of a teaspoon of honey, representing the life's work of a honey bee. It became the focus of an installation at the Tay Landscape Partnership fruit festival but also stands as an artefact in its own right.

3.1 Beespoon as Artefact

This section presents the ideation and design iteration of the Beespoon, and a discussion of the functional properties of the Beespoon in relation to other design practices. This is followed by critical reflection drawn from researcher experience and observation of participants.

Key recurrent themes in the design process were the value, work and productivity of bees. Fast idea generation techniques were used to generate quick-fire responses to the statement "bees make honey". This involved using prompts such as 'inversion', 'translation' and 'subtraction' to interrogate the idea. The provocation 'subtraction' directed attention onto a single bee rather than the hive or colony and yielded the concept of a Beespoon as a unit of measuring a life's work.



Figure 3. Prototype Beespoon. Image credit: authors

Two Beespoon prototypes were created; one was a non-traditional 3D printed spoon loosely based on a culinary measuring spoon while the other mimicked the shape of a teaspoon with the bowl part scaled to a twelfth of its normal size (fig. 3). It was made from copper, initially so that it could be used to make a wax mould for casting or so that it could be plated in silver. However, the copper spoon was kept because it was found appealing and desirable to participants. The design complemented the aesthetic qualities of the honey and gave the illusion of fitting within ‘the world’ of beekeeping equipment, though in reality it would be a poor utensil for tasting because copper taints the taste of honey.

The Beespoon performed a multiplicity of functions and its functionality changed at different stages in the design process. The Beespoon was conceived through conversation between people with different knowledge and expertise drawing on current bee management practices, set against selected narratives from the past including factual and fictional texts. In its early iterative stages it was primarily a *dialogical object*, similar to dialogical props (Coombes, 2015), building empathy and understanding. As the spoon evolved, it continued to provoke dialogue and reflection that revealed coordinated practices, values, shared meanings and motivations, which Charles Spinosa refers to as “*styles*.” (Spinosa et al., 1997) Subsequently the developed Beespoon artefact provided a means for *translating and transmitting* bee-knowledge and accompanying values to a wider audience. The Beespoon was designed as an active articulation of a story about bees and their value. In this it had a *rhetorical* aspect (Buchanan, 1985) asserting the synthesised values of the project, researchers and workshop participants. It echoes Buchanan’s “demonstrative rhetoric” (Ibid., p20) because it lives in the present but has grown from the past and suggests future

possibilities. However, we argue, the Beespoon will accrue its own rhetoric as users “begin their own deliberations” (Ibid.) about the object.

The Beespoon has the potential to agitate between past, present and future and oscillate between real and fictional, operating as a *counterfactual artifact*. (Wakkary et al., 2015). According to Wakkary these artefacts span “the divide between the actual and possible worlds...” (Ibid; 101) because they act as “*if...then* statements” (Ibid; 101), meaning *if* this were true (or false) *then* what worlds would exist. They are “balanced between “falsely” existing in the actual world while being “true” in a possible world.” (Ibid; 105) This position on the boundary between reality and fiction stimulates speculation. The Beespoon has similarities because it is both a true and false object with real and fictional lives. It is a real spoon that holds real honey in the *actual* world, representing a unit of work and the value of bees. However it looks like an artefact from the past, a thing that might have existed as part of a beekeeper’s paraphernalia. It conjures images of a collective rural past and domestic life. In this it is fiction as there are no Beespoons from the past to sit alongside salt spoons and sugar spoons, but as a fiction it has the power to carry images and folklore from the past. Knowing it is a fiction prompts questions about why people from the present felt the need to create it and hence allows reflection on the state of bees in the environment today and speculation about possible futures.

The Beespoon shares some similarities with design fictions; prototyping was used to create “objects with stories ” (Bleeker, 2009, p8) that provoke conversation and discussion. Like design fictions, it has the potential to illuminate priorities and concerns of the present (Bleeker, 2009, p8), in this case ecological threat to bee populations. However there are also significant differences in the function. The Beespoon is not a “diegetic prototype” (Kirby, 2010), which only functions in its fictional world. It is not presented as an object in everyday use, so it does not draw attention to a web of surrounding objects and services (Sterling in Bosche, 2012) that “tell” a world. Nor is it an object seemingly brought back from a near future world. It subtly hints at the future from its position in the present, but it is also designed as a carrier to take stories into the future, rather than retrieving them from the near future.

Often there is an unintentional gathering of meanings around objects as they move through time gaining associations but in this case it is a deliberate intention for the object. The Beespoon is sent into the future with the aim of gathering story patina at every new encounter as a future folklore artefact.

The Beespoon fascinated beekeepers in the codesign workshops and beyond. One beekeeper compared the diameter of a syringe used in an early prototype to the capacity of a bee’s stomach to compare the amount of nectar gathered.

Several beekeepers and non-beekeepers expressed a desire for their own Beespoons and two even asked for details of the jeweller who made the original in order to commission their own. One workshop participant talked about the Beespoon as a potential commercial product: a Christening present or gift to mark special occasions. This resonates with the idea

of bees being central to family life, as exemplified by the folklore of “telling the bees.” One beekeeper who runs educational activities in schools has subsequently begun to weave the story of the Beespoon into their practice.

Our work demonstrates the potential of RtD for knowledge generation. The research process used in the project stimulated dialogue that revealed styles of beekeeping. It also generated reflection on the present and speculation about the future.

3.2 Beespoon Installation

This section presents the ideation and design iteration of the Beespoon installation, and a discussion of the functional properties of the Beespoon installation in relation to other design practices. This is followed by critical reflection drawn from researcher experience and observation of participants.



Figure 4. Beespoon installation showing stand and flower origami wall hanging. Image credit: authors.

The Beespoon was the focal point of an interactive installation at a fruit festival organised by Tay Landscape Partnership. The installation took place inside a small yurt, set beside local beekeeper associations stands. The floor of the yurt was covered with rugs and cushions, so visitors had to remove their shoes before entering and this helped to distinguish it from the

other festival spaces. The bright yellow stand, which held the Beespoon, was positioned towards the back of the yurt, facing the doorway so that people peering in could see it immediately (fig. 4). The front of the yurt was set up as a space for making, with cushioned floor, cube tables, paper, glue and scissors.

The stand was in front of a large hessian fabric wall hanging, dotted with hundreds of white fabric flowers. The flowers represented a proportion of the number a bee would visit in her lifetime in the process of making her Beespoon's worth of honey (only female working bees make honey). We estimated that a bee would visit 1837 flowers over four weeks but scaled it to 306 flowers, a sixth of the total, to account for predicted visitors numbers to the fruit festival. Our team seeded the display with some pre-made origami flowers at the start of the day to initiate the activity.

The Beespoon was placed on a central plinth of yellow and black Perspex hexagons. To the left another plinth held a decorative glass jar of honey and the right-hand plinth incorporated a button and small digital screen. Pressing the button sent a pulse through a peristaltic pump, gradually pumping honey in tiny increments from the jar. The honey was pumped into a central column and through a yellow and black droplet shape to an opening where beads of honey grew and hung until they dropped into the Beespoon below (fig. 5). Several factors affected the visual and material design of the prototype stand, including practical and pragmatic decisions regarding the installation of the Beespoon at an outdoor festival site (e.g. limited budget, very short timescale, lack of electricity on site, uneven floor surface). In addition, the installation had to be portable and modular for transportation. Design choices considered the intended audience of general public, in particular families and young children, for instance, the brightly coloured yellow and black plinth was created to immediately catch the eye from across a tent and make a connection with bees. Critically however, the installation was designed to emphasise the contrast between the copper Beespoon and the acrylic plinth to intentionally provoke dialogue.

When visitors entered the space they were shown the Beespoon and invited to make origami flowers to add to the display (fig. 6). Visitors were shown how to make flowers of different designs and complexity. This made the activity accessible but also hinted at differences in effort as bees travelled to flowers close to the hive and further away. Origami flowers made by visitors were attached to the wall hanging so that, over the course of the day, visitors' work could be compared to that of a bee visiting flowers to collect nectar and pollen for the hive. For every flower made, the visitor was encouraged to press a button to pump a minuscule amount of honey so that over the day the Beespoon would gradually be filled.



Figure 5. Activating the Beespoon installation. Image credit: Lindsay Perth.



Figure 6. Making origami flowers. Image credit: Lindsay Perth.

Beespoon bookmarks and packets of Scottish flower seed with beelore imprinted on them were distributed to visitors as a reminder of the relationship between production and pollination.

The Beespoon installation functioned in several ways. At a basic level the installation turned the Beespoon into a piece of *information visualisation* showing the whole life productivity of

a honey bee. It also compounded the blurring between reality and fiction, by turning the spoon into an active honey-collecting utensil, making it perform, hinting at a potential existence in the 'actual' world. The plinth-like stand was intended to take the spoon out of its everyday and mundane associations and present it as an iconic symbol of value.

The flower display and origami activity provided opportunities to talk about flowers, gardens, foraging and bee jobs, so expanding the range of potential stories offered by the Beespoon alone. It also *changed the focus* from productivity to effort and work. The various parts of the installation acted as story prompts, for example the paper colours were a reminder of bees' preference for blue and purple flowers over red ones. Another function of the Beespoon installation was to increase the activity space around the Beespoon and extend the potential for time spent in conversation, reflection and speculation. The research team took on a supporting (or accessory) role performing in response to the installation prompts, sharing knowledge synthesised during time spent with beekeepers and storytellers alike.

We were surprised by the quality of the engagement from those who visited the yurt. We had anticipated that visitors might only stay a short a time and make the quickest, easiest flower possible in order to interact with the Beespoon, but children were captivated by the complicated designs and often chose them though they took much longer to make. Many children were in the tent for more than fifteen minutes with some staying over 30mins, or making return visits over the course of the day's installation.

The Beespoon always provoked a response, often astonishment, generally followed by contemplating the number of bee lives that produced the honey on a piece of toast. Some commented that it made them feel bad about how much honey they used. Others marvelled at the preciousness of honey.

On the day of the festival a temperature drop increased the honey's viscosity and distorted the calculations connecting numbers of origami flowers with pulses on the peristaltic pump, but we adapted the interaction and it seemed to have unintended positive outcomes. There were more opportunities to talk as children often spent several minutes waiting for the burgeoning droplets to fall, whilst visitors had time to tell us about their bee experiences and ask questions.

We intended to display the Beespoon symbolically but the associations with historical or imagined relics emerged through the design process. This arose from the codesign workshop 'show and tell' sessions when beekeepers brought in equipment old and new. The Beespoon intrinsically appeared to fit this world.

4. Final Thoughts

This paper has presented a Research through Design process and artefact, the Beespoon, which formed part of an interdisciplinary research project that sought to reveal knowledge held and shared by beekeepers about bees and beekeeping practices. As we have seen, beekeeping is a rich and pertinent area in which to consider the role and potential of design,

situated within complex environmental and political debates. Our codesign process brought Scottish beekeeping communities, storytellers and researchers together to consider past stories, contemporary management practices and future narratives.

The Beespoon, at face value a small copper spoon 1/12th the size of a teaspoon, represents the amount of honey a bee can make across her entire lifetime. By reflecting on its codesign process and an interactive installation of the Beespoon at a community fruit festival, we have explored the many functions and spaces it inhabits. We argue that the Beespoon acts as an example of a *future folklore* artefact, drawing on the past (through the design process and artefact aesthetic), reflecting on the present (by saying something about our current societal state) and projecting into the future. Like traditional folklore, we rescind fixed ownership over the work, encouraging story patinas to emerge and evolve through the collective memory of our codesigners and festival visitors. As we have discussed, the Beespoon afforded a set of spaces within which conversations, understandings and new imaginings could emerge. This nuanced approach to *future folklore* is we believe a fruitful area worthy of future study.

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Uber and Language/Action Theory

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Abstract: Mediated communication is the way that distributed and proximate work teams communicate, and is structured nearly completely through software. Users request and make commitments, collaborate on and complete projects, and develop new software systems through software-based conversations. Yet, software designers and developers approach designing conversation software as a series of generic submissions, rather than as an iterative and reflexive process of specific and varied types of speech-acts. This paper examines two pieces of software: The Coordinator and the Uber Partner (driver) app, and a summary of the dialog surrounding the release of the Coordinator as an implementation of Language/Action Theory.

Keywords: conversation; Language/Action theory; systems design; behavior shaping

1. Introduction

Digital communications and workflow management software have become thoroughly embedded in the workplace. Workers communicate through email, text messaging, through software-based services like Basecamp, Slack, custom intranet-based discussion tools, wikis. With the office fragmenting into isolated units of at-home employees, mobile offices, and third-place offices, mediated communications are *the* way that work gets done. Work conversations take place increasingly through mediated, and media-based experiences. Yet designers and developers lack a critical approach (or even a socially-oriented approach) when designing and prototyping conversation technologies. In my experience developing internet-based software, and helping create on line communities, the conversation centers more around the technical scope of what is buildable, the human-resources scope of what is accomplishable, and the user-experience scope of what is acceptable and useable. During a development process, far more effort is spent discussing these factors, and the questions of how people will use the system in a social sense are left for the users to muddle through. Designers of conversational systems choose from the same set of limited and limiting set of



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patterns. Yet challenges arise when the design of these conversational systems structure communications and commitment-making in ways that serve interests other than the agents involved in the conversation or commitment. Unfortunately when this aspect is considered, the design of computer systems is all too often directed against the best interests of the user (q.v. darkpatterns.org), and represents an empathy directed away from users and towards value-extraction on behalf of the owners of the software system

This paper will examine Terry Winograd and Fernando Flores' approach to designing for conversation and commitment with the approach of Language/Action Theory, and will principally discuss two pieces of software: Winograd and Flores' Coordinator, and a Language/Action Theory based analysis of the Uber Partner (Driver) mobile phone app.

2. Understanding Computers and Cognition

Language/Action Theory

The debate around the conversational organization of workflow management tools begins in the book *Understanding Computers and Cognition*, with the creation of Language/Action Theory, proposed by Flores and Winograd as new direction for the development of computer software generally, and specifically the problems of creating an Artificial Intelligence.

Understanding Computers and Cognition proposes an approach to designing computer systems that abandons the cognitive psychology approach of making computers think like human beings. Winograd and Flores propose approaching the design of computer systems from a perspective that is founded in biology and philosophy rather than what they consider to be a misdirected attempt to make computers replicate human behavior.

The approaches proposed in *Understanding Computers and Cognition* place language at the center of the understanding of computer systems, and propose that computers are more useful as a communication tool, that the principal activity of computer systems design should be to support human activity, rather than to give the machine a kind of agency. In fact, for Winograd and Flores “Nothing exists except through language.” (Winograd & Flores, 1986, p.68)

Winograd and Flores examine commitment and action through *speech acts*. According to J.L. Austin, a speech act is essentially: language (using only literal meaning, not Grice-ian implicature²³⁸) in the context of conversation, interpreted as action by people (Austin, 1962). Flores and Winograd's approach to action-oriented conversation runs a parallel track to Austin: “an understanding of language as meaningful acts by speakers in situations of shared activity.” (Winograd & Flores, 1986, p.54)

²³⁸ H.P. Grice (1975) details the concept of implicature, essentially the idea that words can imply a meaning that exists outside of their literal meaning in natural language. Statements made with implicature depend upon a broad shared cultural agreement of inferences that contain the meaningful content.

Winograd and Flores pay special attention to a set of commitment-making speech acts. These acts form the foundation for a set of structured commitments that a person could make in a conversation. These acts are:

Flores & Winograd (1986, p58), quoting Searle's taxonomy of J.L. Austin's performatives:

- Assertives – commit the speaker to something being the case (this I believe)
- Directives – attempt to get the hearer to do something (a question is a type of directive, attempts to get the hearer to make an assertion)
- Commissives – commit the speaker to do something
- Expressives – expresses a psychological state about a situation (apologizing and praising)
- Declarations – establish correspondence between the propositional content of speech and reality (pronounce a couple married)

This taxonomy describes what the speaker can *do* with their utterance, how a person can take action through their language. Flores and Winograd call to attention that these speech-acts make sense principally in relation to a conversational background. This conversational background may include the containing culture, a shared history of the participants, an understanding of the current situation. When there is a breakdown in the conversation, it is the inappropriateness or un-relation of the background that is often to blame. (Winograd and Flores say that this is one kind of instance when a listener will think the speaker cannot be taken seriously.)

The following diagram, also from *Understanding Computers and Cognition*, delineates the abstracted structure for a network of Searle's performative speech acts, directed towards conditions of satisfaction. Winograd and Flores admit that this kind of reductionist, rational approach is antithetical to the approach they are advocating, but that the goal of their theorizing is to be able to build computer systems that accommodate human action. Computer programming architecture itself is dependent upon the existence of abstracted logical structures. Therefore, some concession must be made in order to have a functional computer program.

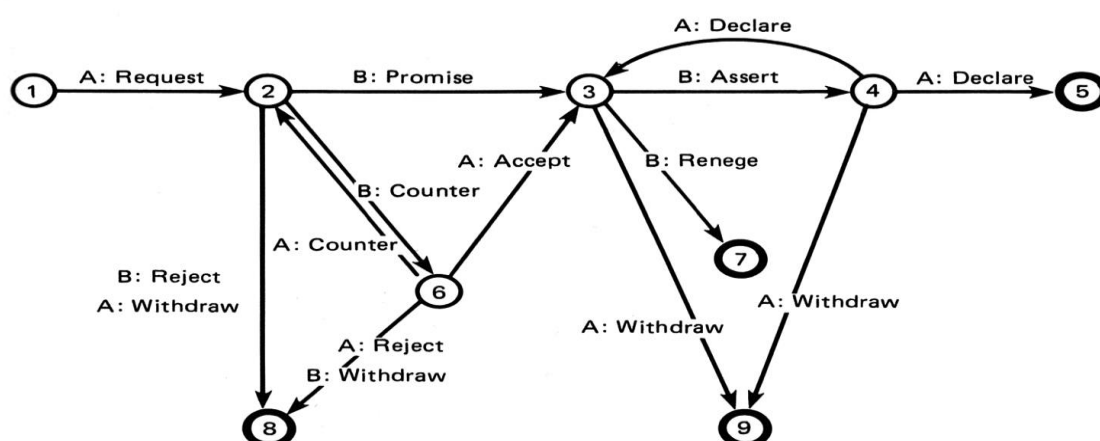


Figure 1: The basic conversation for action (Winograd and Flores, 1986, p65)

Flores and Winograd detail how, through a series of requests, promises, assertions and declarations, a pair of actors can move from irresolution to resolution. Through a conversation for action, one actor can create conditions of satisfaction for the other.

Winograd and Flores clearly state that symbolic language, while important, is not how knowledge exists for human beings. However, representation is key to knowledge sharing. Representation is also key to conversation, as it is through the exchange and manipulation of symbols that conversation can occur, that a being can gain access to another's understandings, perspectives and approaches. It is through the sharing of symbols that we can communicate, and take action based upon those communications. For Winograd and Flores, language is community property, not personal property.

Yet, it is this challenge of the digitization of the inherently non-digital processes that creates the problem for designing software that can support behaviors that are compatible with, as Lucy Suchman (1994) says, the specificity, heterogeneity and practicality of organizational life as social humans. It is the designer's obligation to encode sensitivity to the user's background into a designed solution by developing a rich, historically and culturally informed understanding of the context of the conversation and folding that knowledge into the designed object (Collins, 2004; Collins & Evans, 2007).

•Importance of Conversation in Artificial Intelligence

Winograd and Flores also describe the problem of attempting to design systems that simulate a conversation with another person where the two share a background. In Alan Turing's view, the development of seamless human computer interaction in the medium of natural language conversation is a more useful prospect to explore than the question of whether computers can think (Turing, 1950). The compelling simplicity of Turing's vision of understanding machine ability through conversation led sociologist Harry Collins to propose a taxonomy of expertise to include *interactional expertise*, which can be summarized as the ability to pass as an expert in a certain domain through conversation (Collins, 2004). Collins'

interactional expertise argues against Heidegger's sense of embodied knowing – that understanding cannot be developed without embodiment. Collins proposes that interactional expertise is achieved when a researcher (like a sociologist or ethnographer) researching a subculture acquires enough of an understanding of the subject domain of their research, they have mastered the language of that expert group. Collins, like Turing, points to the ability to carry on a conversation in a topic area as the key act of fluency of interactional expertise.

Winograd claims that even though language is not fundamental to knowing, because language is our main social tool, language is the way to make a command and the way that commitments are negotiated. Therefore, for Winograd and Flores, the computer cannot be the expert, or behave as an actor in the conversational system, but it can facilitate the communication, can structure and can share the communication. (Winograd & Flores, 1986, p.77) Meaning and Language remain social constructions, but computer will never be an embodied, social being. Therefore our meaning and our language remain inaccessible to it.²³⁹

Yet, Jaap Jelsma (2003), following an idea developed by Bruno Latour, tells us that computers, as a component of the socio-technical landscape, can exert a scripting influence on the people who use them. Though it is not embodied, through the shaping and manipulation of symbols, the computer becomes part of the conversational environment, or the site for the conversation, rather than being an actor in the conversation.

Deliberation and Commitment

Though the term “deliberation” is used in many contexts, for Winograd and Flores, moving from irresolution to resolution is *deliberation*, a kind of conversation. Deliberative conversation is a guided, or facilitated experience that results in action:

1. At some moment in the process of articulating the claims, some *incipient partial proposals can be discerned*, as different people give opinions, suggestions, disparagements, counter-offers, etc. In this conversation, distinctions between means and goals, parts and wholes are discarded in favor of interpretations about possible causal links, potential results, and inconveniences.
2. At some moment, a sedimented opinion about possible courses of action to be evaluated and considered may begin to appear; this is when the process called ‘choosing’ could be considered. However, the name ‘choosing’ is inadequate, because it suggests algorithmic procedures for selecting the course of action. (Winograd & Flores, 1986, p. 149)

Winograd and Flores note that resolution is “the exploration of a situation, not the application of habitual means” (1986, p. 150). To give an answer for the problem of ‘choosing’ mentioned above, one might turn to anthropologist Annemarie Mol and her investigation of diabetic patients in *The Logic of Care* (2008). In this work, Mol contrasts a

²³⁹ John Searle refers to this as the Chinese Room problem of understanding intelligence: a person, with proper instruction in the presentation of sheets of paper with written Chinese could carry on a written conversation by presenting the sheet as instructed without actually knowing Chinese, and thus pass the Turing Test.

logic of choice with a logic of care, suggesting that there is a kind of discipline, or mindfulness in care, perhaps the kind of discipline that Winograd and Flores hoped to engender with The Coordinator. Perhaps Winograd and Flores, had Mol's articulation of care been available to them at the time, would have said that The Coordinator exists not to discipline and structure, but to make employees mindful of the ways in which they are communicating, and make and receive commitments in the work situation in a more conscious way.

•The Coordinator

Winograd details the creation of The Coordinator, a piece of software that structures and tracks commitment among business colleagues (Winograd, 1987). The Coordinator is built using the theoretical principles of the Language/Action Theory proposed in *Understanding Computers and Cognition*. Utilizing Searle's taxonomy, The Coordinator reifies the different speech acts as structured forms that correspond to the types of speech acts.

As it is described in Winograd's paper, initiating a conversation in The Coordinator works as follows:

A user initiates a request, by selecting a request type from a predetermined list of options. The type of request determines a structured template that will be used to formulate the request. Below is the example request initiation screen.

C O N V E R S E	
OPEN CONVERSATION FOR ACTION	REVIEW / HANDLE
Request	Read new mail
Offer	Missing my response
	Missing other's response
OPEN CONVERSATION FOR POSSIBILITIES	
Declare an opening	My promises/offers
	My requests
ANSWER	Commitments due: 24-May-88
NOTES	Conversation records

Figure 2, Converse screen from the Coordinator (Winograd, 1987)

In a system similar to email usage, in the following request screen the user can choose the recipient, those who will receive copies, as well as a more open tagging and categorization structure. The request itself includes a subject, a free-form text body as well as three dates to provide structured timing for the request: a respond-by date, a complete-by date, and an alert date.

The recipient of the request reviews received requests through the menu shown below:

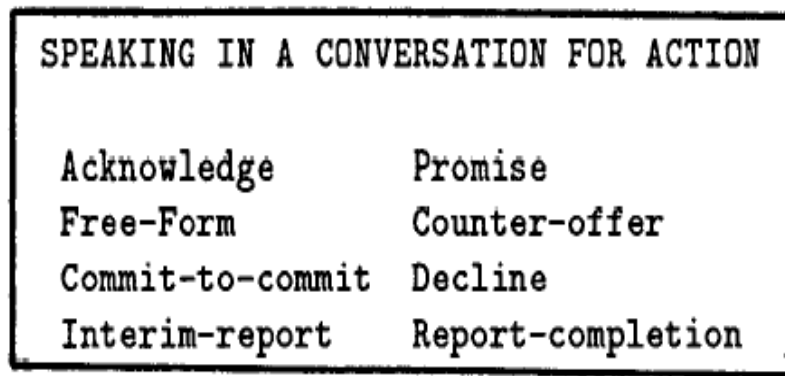


Figure 3. Request response menu from the Coordinator (Winograd, 1987)

The response screen allows several types of response, core to the original idea are promise, counter-offer, decline. The key element of The Coordinator system is the conversational metadata about the types of requests that are initiated, and the types of responses.

While the Coordinator never became a significant part of workflow management, it did engender significant academic dialog around the political aspect of categories, structuring of communication, and the role of digitization of communication processes.

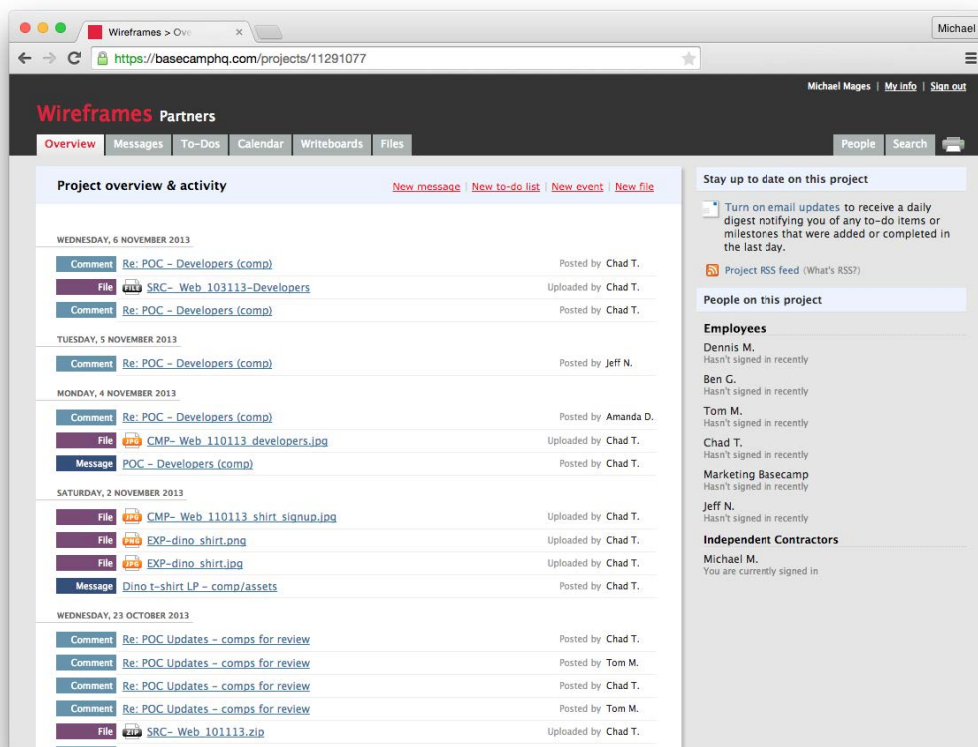


Figure 4. Basecamp HQ workflow management overview screen (basecamp.hq.com)

Further, the influence of concepts central to The Coordinator can be seen in a number of workflow-tracking applications. As can be seen in the image of 37 Signals' Basecamp software above, similar features exist for structuring message content, and generating metadata: Message, To-do list, event, and file are more free-form ways to structure a conversation. Similar approaches can be found in other online workflow tracking softwares like Podio (podio.com/site/features/task-management), Siasto (www.siasco.com/tour), Trello (trello.com/tour), Asana (asana.com/product), and others. While I have not traced the genealogy of these applications to The Coordinator, the introduction of workflow software via Flores and Winograd's offering and the consideration of categories of communication represent a liminal point in the design of workflow information systems.

• *Conversations for Action*

Independently of Winograd, Fernando Flores wrote *Conversations for Action and Collected Essays* (2012). In this book, Flores delineates several archetypal conversations and components of these conversations as they occur in business settings. Flores' underlying assumption in *Conversations for Action* is that: people are generally trying to act positively; the system of hierarchy in the workplace is fundamentally benevolent; the goal of the conversation is known or at least knowable; there are challenges that get in the way of clear communication; and that people want to ameliorate those challenges.

Flores details 3 types of conversation:

- **for action** - making commitment (previously reified as The Coordinator)
- **for possibilities** - making shared frames
- **for moving forward** - avoiding making characterizations that limit futures

And their underlying challenges:

- **characterizations** - necessary to getting work done, a kind of assessment
- **moods** - when characterizations become assumed and become the underlying context for new assessments.
- **trust** - built up over time: composed of sincerity, competence, reliability, engagement (Flores, 2012)

In Flores' approach to conversation, characterizations are assessing-type statements that we make about a person or situation, assigning them to a certain typology. For Flores, making characterizations is a dangerous game. Characterizations about people or groups limit future possibilities for working together. However, it is a human act to make characterizations about people and situations. People continuously make characterizations about themselves as well as about others. Flores claims that frequently, people will make characterizations that are not well-grounded. A well-grounded characterization is supported by experience, by a pattern of assertions that one has experienced (Flores, 2012, p. 56). Characterizations are a limiting factor for future action. Carol Dweck describes these characterizations as a type of mindset (Dweck, 2008b), and has done extensive research on the limits for growth and

learning potential that mindset can contribute (Dweck, 2008a). Strangely enough, Flores' critique of characterization roughly parallels Suchman's critique of software-structured categorization of utterances.

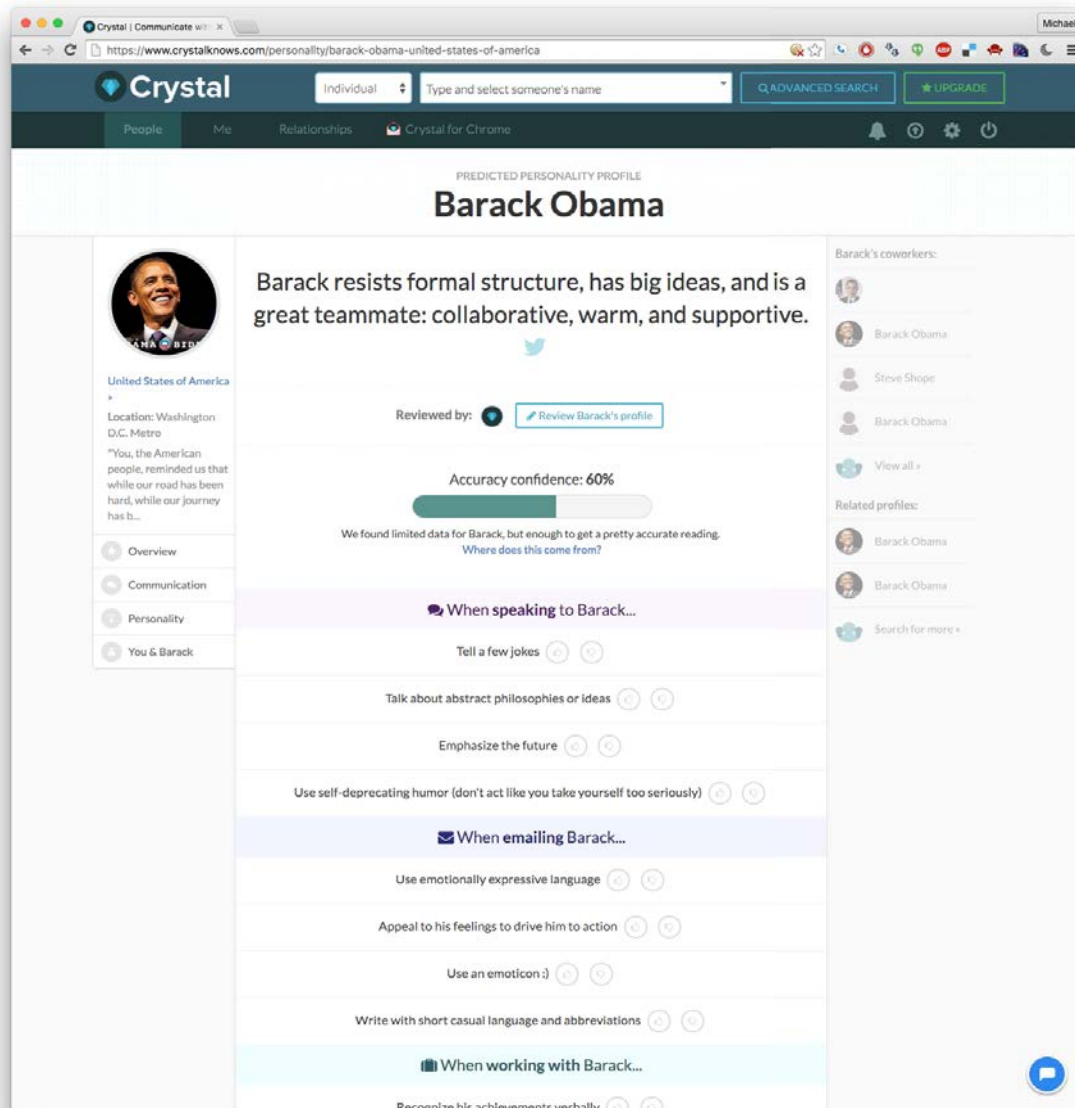


Figure 5. Profile screen from Crystalknows.com

Interestingly, in the realm of characterization/mindset, there is a relatively new product, Crystal (crystalknows.com), a service that attempts to provide context and shaping for a conversation, and communicate to facilitate a potential email recipient's receptiveness (also conveniently available as a plugin to Gmail and LinkedIn!). Crystal creates a set of characterizations by scanning publicly available social media profiles. To consider Flores' and Dweck's approach to characterization/mindset, the use of this application, while purported to be a boon to communication, easing the interaction with a potential partner, is inherently future-limiting. Besides my concern that, if this software becomes popular, I will be

inundated with emoticon-filled emails (:-P) the provenance of the characterizations offered here is specious, and hidden, and the suggestions given are at the specificity level of horoscope writing at best. Flores states that through characterizations we commit to speculations about the future, and choose to direct where we will discover future opportunities. Basing a conversation from weakly or poorly grounded characterizations limits the development of future opportunities and domains of action.

3. The debate: Do Categories Have Politics?

In an incisive critique of the use and nature of categorization within Flores and Winograd's Coordinator titled *Do Categories Have Politics?* (1994) anthropologist Lucy Suchman centers on the issue of categorization, and brings forth critiques citing Harvey Sacks, and Michel Foucault. Suchman's critique engendered such further interest, that a complete issue of Computer-Supported Cooperative Work (1994, vol 3) was devoted to exploring the space of the debate.

Predominantly, Suchman's critique concerns the nature of categories themselves, and the political nature of who constructs those categories. Borrowing from Sacks' writing on teen hotrodders, Suchman says "...the adoption of speech act theory as a foundation for system design, with its emphasis on the encoding of speakers' intentions into explicit categories, carries with it an agenda of discipline and control over organization members' actions." (Suchman, 1994) Suchman points to Michel Foucault's writing on the training of 18th century soldiers, analogizing the technical workers to Foucault's soldiers subjected and practiced bodies.

Suchman takes further issue with the schematic nature of model of the conversation for action upon which The Coordinator is based: that the conversation delineated by the model is findable anywhere, a totalizing influence that shuts off the potential for other conversations to exist outside its schema. Suchman's concern here is that the parametrization of the heterogeneity of work-life is inadequate to serve the art of collaborative work. Suchman argues that The Coordinator serves only to reproduce and reinforce the dominant paradigm of management upon the social order of the workplace. In this article, Suchman presents The Coordinator as a tool for accountability and accountancy, a way for management to track and measure employee productivity, and enforce discipline.

•Categories, Disciplines, and Social Coordination

In a rebuttal, Winograd answers some of Suchman's critique (Winograd, 1994). Winograd explicitly paints the picture of the proletarian struggle that he claims is the subtext to Suchman's critique of Language/Action Theory and The Coordinator. Yet, Winograd claims that Suchman has unjustly subjected Language/Action Theory and The Coordinator to oversimplified dichotomies that deny the richness of the social interactions described by the theory.

Winograd agrees with Suchman's point regarding the inadequacy of The Coordinator to capture the heterogeneity of commitment in workplace life, claiming accurately, that the nature of designing a framework for use in computer systems necessitates a significant degree of abstraction. The development of software architecture privileges recurrent patterns rather than heterogeneity. One of the most significant challenges of software design is to create an algorithmic process that supports a wide range of creative acts. Even something as seemingly simple and pro forma as e-commerce systems (unknown in the days of these papers) inherit radical heterogeneity when they begin to intersect with the systems that resist digitization: multiple overlapping political boundaries that determine sales tax calculation, and systems to facilitate order picking from inventory, packaging, and shipping. Digitization imposes its own discipline upon these acts, as every customer address and tax and shipping profile, every inventory location and every inventory quantity must be coded in a structured system, and e-commerce software must, at the least, communicate with the software system and human beings that manage those inventory locations and quantities, and interface with the bizarre system of multiple, overlapping political and geographic boundaries to calculate sales tax and order shipping based upon the customer's physical address entries.

While aspects of this argument have become less interesting over the years since these arguments were posed (that our computer-supported collaborative work will intersect with multiple systems, that accountancy of Language/Actions will produce a deluge of data of commitment requests, and will require that hours of work time are spent managing the digital artifacts of those selfsame Language/Action commitments) the core questions: What happens when human processes are digitized? and To what degree is behavior-shaping through technology ethical, and desirable? are still valid questions to be asked as we embed our ethics in our soft- and hardware.

4. Uber

Let's examine another process, similar to The Coordinator, that may have less benevolence and be more susceptible to Suchman's critique. An hour of leisurely browsing of <http://uberpeople.net/> reveals a plethora of anecdotal evidence of a proletarian struggle against an oppressive bourgeoisie. Some of the discussion threads read as clear as an indictment of Uber's labor practices as Anna Sewell's accounts of animal abuse in the Livery industry in Victorian England (Sewell, 1870).

A person working as an Uber driver, is making commitments with customers following the principles of Language/Action theory, yet, the provider of the system (Uber) is explicitly seeking to derive as much profit from the livery as possible, create an experience that is high-quality for the customers and owned by the Uber organization, isolate the livery from remuneration outside the system, while providing only minimal support, and disavowing a committed relationship between the employer and employee.

Following is one critical path through the Uber driver's app, as dramatized in Uber's employee training video (archived at <https://youtu.be/JvEFw2AGLOw>). The training video is 13:35 long, and contains multiple sections, including a basic orientation to the software, details of the customer's rating module, and instructions on how to use the software and Uber service as a driver. In the following scenario, according to Flores and Winograd's Conversation for Action model, the customer is A, and the driver, B.



Figure 6: **A: Request (1→2)** The Uber driver receives a request. However, the software hides the scope of the request. The driver is merely notified of the pickup request and location. It does not tell the driver the customer's desired destination and assumes the customer is actually ready to be picked up.



Figure 7: **B: Promise (2→3)** The Uber driver has the option to not accept the pickup, but unbeknownst to drivers, non-acceptance of too many pickups (drivers are not told how many) will result in the driver's exile from the Uber network.



Figure 8: **B: Reject, A: Withdraw (2→8)** An Uber driver has the option to cancel a pickup after it has been accepted. The driver may cancel, but must provide metadata about the nature of the cancellation. The metadata determines whether the customer will be charged for the cancellation. Yet, some customers get a number of free cancellations.

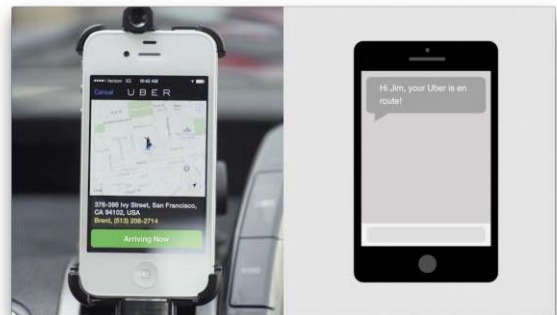
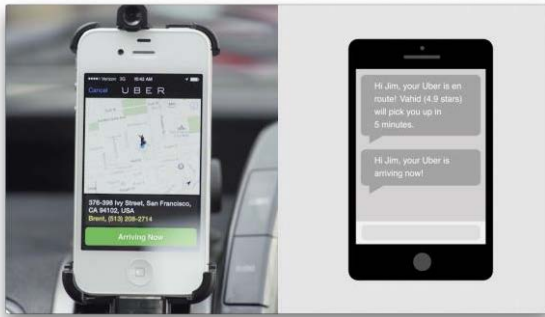


Figure 9: **B: Assert (3→4)** Once the driver accepts the customer's request, the customer is sent a notification via the Uber application. Once calculated, an estimated arrival time is also sent via the Uber application.



in transit, not shown

Figure 10: B: Assert (3→4) Once the driver has arrived at the pickup point, they click the “Arriving Now” button, which generates a text message to the customer. In the training video, potential drivers are cautioned that the customer may not be ready or even at the pickup point, and the driver should wait, but not call the customer, as customers find calls to be annoying.

A: Declare (4→3) or A: Withdraw (4→9) The Uber training video does not refer to using the application while in transit, except to suggest that the driver may want to purchase a supplemental standalone GPS hardware, or use Waze or Google Maps. Here, the declare step is invoked when the customer accepts the ride. The customer may also chose to withdraw at this point, paying a \$5 penalty for cancellation.



Figure 11: B: Assert (3→4) At the end of the trip, the driver presses the “End Trip” button, which ends the trip and generates a fare payment on the customer’s account.

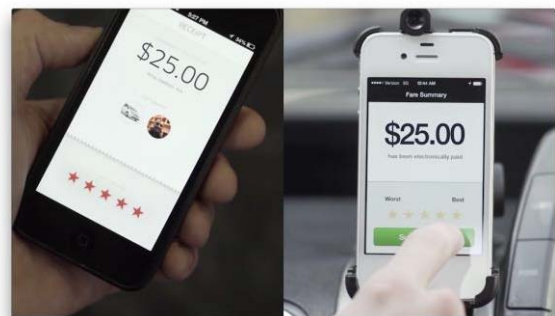


Figure 12: A: Declare (4→5) Both the driver and the customer are notified of the full fare amount, and each have the opportunity to rate the experience of the other. However, the driver nets 70–80% of the fare, depending upon the number of riders they have fulfilled in the week.

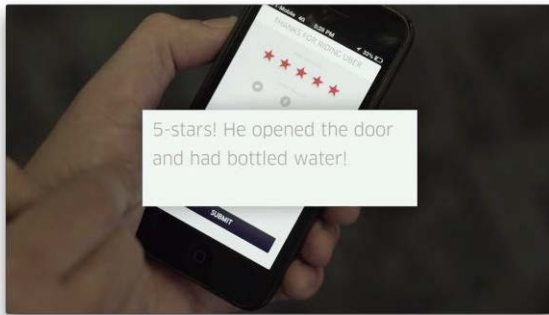


Figure 13: **A: Declare (4→5)** The customer is shown, rating the driver's execution of the Uber experience.



Figure 14: **B: Declare (not on model)** The driver is notified of the amount of the fare, and may submit a passenger rating. However, the fare shown here is what the passenger pays, not what the driver receives.

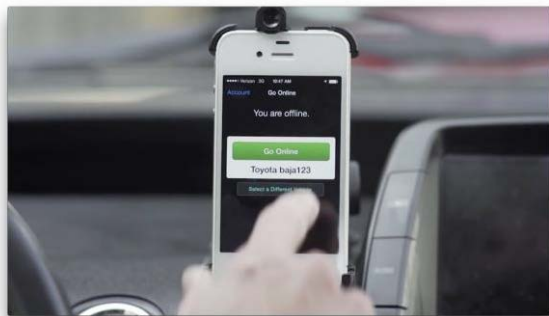


Figure 15: **B: Offer (not on model, or return to 1)** — The driver signals his availability for future customers by pressing "Go Online".

The Uber application violates several of the best practices that Winograd and Flores set forth for the design of applications that support speech acts. Most salient as relates to the Uber driver's app, are the repeated violations of the clear delineation of responsibility and scope of promise in commitment. The Uber app and the Uber employee training video do their best to obscure responsibility on behalf of the Uber organization, and diffuse the scope of request on behalf of the customer. To quote Flores and Winograd:

Once we recognize the machine as an intermediary, it becomes clear that the commitment inherent in the use of language is made by those who produce the system. In the absence of this perspective it becomes all too easy to make the dangerous

mistake of interpreting the machine as making commitments, thereby concealing the source of responsibility for what it does. (Winograd & Flores, 1986, p.155)

By not articulating the scope of the driver's commitment when the customer's pickup request is delivered, Uber denies the driver the opportunity to refuse pickups that may be less profitable – such as those pickups that lead the driver to a remote area where acquiring new fares is unlikely. The customer's rating of drivers is emphasized at throughout the video as a feedback tool for drivers, so they can understand how to create a better customer experience. Yet, Uber maintains and tabulates a set of hidden and poorly defined offences by drivers: declining a pickup request, arriving at a pickup point too slowly, not logging enough time on the system. These offences are tabulated by Uber's system, and a obscure number of them will result in the driver's exile from the Uber system. Other than customer reviews, the existence of these other ratings of performance are not made available to the driver through any feedback channel, visual or otherwise. The existence of productivity measures aside from the customer's rating of drivers is made evident in the training video only by oblique statements such as this one at 6:20 “Because all requests go to the closest driver, your acceptance rate is important.” The clearest statement regarding exile from the Uber network is an equivocation made at 1:37 and repeated at 9:30 as regards the customer's rating of drivers: “If your rating falls below rider expectations, you may lose access to the Uber application.” and this is associated visually with a 1-star rating, perhaps implying that 3 and 4 star ratings are part of the spectrum of acceptable service. Also note, this one-star rating is shown disassociated with the actual Uber application.

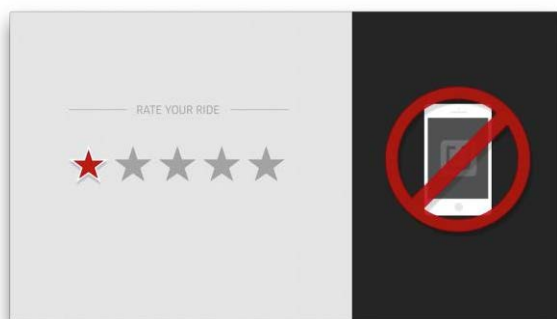


Figure 16: 1:37 Reference to discipline by the Uber network

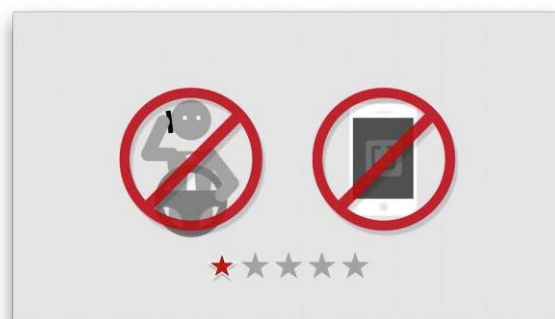


Figure 17: 9:30 Reference to discipline by the Uber network

That this disciplinary structure exists, but is not visualized or otherwise made evident through the Uber software is an ethical lapse: the aforementioned concealing of responsibility, or more to the point, intentionally obfuscating information that is used to measure employee productivity, and will be used to discipline an employee.

Suchman's critique of the Coordinator draws out fair points as regards the Uber driver critical path: Language/Action Theory is not sufficient to ensure positive acts in the software.

However, for the exploitation to occur, the keepers of the system of control and discipline must be in a position to effectively execute exploitation. While Winograd and Flores did not attain that scope in the creation of The Coordinator, creators of valuable networks like Uber, Ebay, AirBnB, and Alibaba have the potential to exert oppressive force upon their employees, customers and suppliers through the structuring of commitment, and how their interfaces both conceal and reveal data, and what measures are chosen and shared with employees to track productivity and customer satisfaction. Suchman points to Winograd and Flores' Coordinator as a tool with an agenda of discipline and control, although Suchman does not go so far to call it a paternalistic application. Paternalism entails responsibility for those whose freedom is restricted. And yet, the Uber application is not even paternalistic. Uber commands without accountability.

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Emotional Fit: Developing a new fashion design methodology for mature women

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Abstract: This paper reports on a user-centered methodological approach towards fashion design for mature women (55+). Referred to as the 'baby boomers' the women in this study are the product of the cultural revolution of the 1960s, who consequently have a strong sense of their own 'agency', as conveyed through their clothing and style, but now find themselves stepping into the unknown territory of a limited market. The majority of fashion brands and stores are aimed at younger consumers, and with some exceptions, it is only high and niche designer labels who are offering stylish garments that complement the changing bodies of an older generation women with strong aesthetic values. In response to this situation three researchers have developed an original research methodology which synthesizes fashion and textile design practices with Interpretative Phenomenological Analysis (IPA), resulting in an holistic, co-design and user-centred approach that responds to the emotional and physical needs of an ageing female demographic.

Keywords: ageing bodies, Interpretative Phenomenological Analysis (IPA), emotional durability, fashion methodology

1. Introduction

The term Emotional Fit has been assigned to this project to reflect the emotive and technical terrain the investigation is concerned with: the female participants and researchers are concerned about the current state of fashion for mature women and aim to come up with some innovatively designed, well-fitting garments that meet the aesthetic and emotional needs of this growing demographic. To contextualise the study, there are more than 12 million women aged 45-105 in the UK, one fifth of the population, who represent vast economic potential and a wealth of experiential knowledge in terms of the phenomenon of fashion. In spite of this, in most Western societies mature women have often failed to be considered as a prime market by designers and mainstream retailers resulting in a form of



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socio-cultural invisibility (Church Gibson 2000). Although this situation is slowly beginning to be addressed by the design world, the legacy of neglect is reflected by the high street and ready-to-wear collections offered by the fashion and clothing industry, who have continually overlooked (if not intentionally ignored) this segment of the population. This is a missed opportunity for the fashion industry that has resulted in dissatisfaction and frustration, particularly amongst older female customers who have a strong sense of their identity and 'agency' through their varied and tacit experiences of selecting, making, adapting, styling and wearing clothes. This has developed from their lasting relationship with fashion, which was influenced by the cultural revolution of the 1960s Britain and was the backdrop to their coming of age.

Returning to the reasons for the failure of designers to address the needs of an ageing demographic, Professor of Social Policy and Sociology at the University of Kent, Julia Twigg comments that "fashion and age sit uncomfortably together" (Twigg, 2013, p.1). Furthermore, she defines ageing as a form of "disruption", highlighting the lack of acceptance of this phenomenon within society. In response to this situation, the authors argue that in order to address this significant, specialist market sector through innovation, an holistic research methodology is required that both responds to and augments the aesthetic, physiological and emotional considerations informing this burgeoning area of design. In this paper we report on the working progress and preliminary findings stemming from the exploratory stages of the project, which are informing the methodology.

Our first steps towards developing the methodology required us to more fully understand and explore the relationship between ageing females and their sense of agency through fashion. In order to achieve this it was necessary to evaluate mature women's experiential knowledge of wearing fashion, resulting in the following initial research objectives:

- To explore how fashion and clothing is experienced and remembered by a sample of mature British women over the age of 55;
- To understand their issues with sizing and fit;
- To discover their aesthetic design preferences;
- To create a series of womenswear prototypes that reflect their emotional design needs and preferences.

The first three objectives have, and continue to be addressed through a qualitative investigation utilizing methods such as creative workshops and in-depth interviews, but the fulfilment of the last objective will be facilitated through the development of a series of potential design solutions encapsulating aesthetics, innovative garment shaping, fitting and sizing solutions. The project builds on related research into fashion and ageing (Sadkowska et al, 2014) creative pattern cutting (including zero waste) and sculptural shaping (Townsend 2013; Sissons 2010) hybrid technical and simultaneous fashion and textile design approaches (Townsend 2004b). The research also considers the role of emotion as a catalyst within practice (Niedderer and Townsend 2014) longevity and emotional durability (Chapman 2015) through collaborative (diffuse) design for social innovation (Manzini 2015).

Significantly, this research triangulates these design approaches with psychological insights into how mature women wear clothes, by considering how fashion products and feelings which once defined the past can potentially become the key to “un- locking” the present (Sadkowska, et al, 2014) and facilitate a dialogue between the wearer(s) and designer(s). This involves a conceptual and exploratory fashion practice, where an interdisciplinary methodology is developed through the balancing of theory and practice, which we explain below.

2. Research Context and Rationale

Growing old and the experience of it has become a significant topic in the contemporary social research agenda, due to increased human lifespans, which together with the presence of the post-World War II baby boomers, has impacted on the development of an ageing population. The post-industrial economy of improved healthcare, leisure opportunities and bio-medical technologies have affected both the biological and social spheres of growing old, improving opportunities but also producing new challenges for ageing identities across the gender spectrum (Powell and Gilbert 2009; Fraser and Greco 2005; Featherstone and Hepworth 1991). As Gilleard and Higgs (2005) note, the current ageing generation is the one that created a consumer culture built on youth and sexuality, “so that their attainment of the Third Age status marks a new stage in the cultural constitution of age” (Twigg, 2007, p.300). In this “contemporary age of aging” (Powell and Gilbert, 2009, vii) the postmodern approach disrupts the constrained perceptions of growing old, placing the emphasis on the individuals, their bodies and identities, experiences, actions, practices and dynamics.

“[P]ersons remake themselves over time, and thus their identities change” (Arxer, et al, 2009, p.46); human biographies have the potential to be translated as the relationships between personal and structural factors. Consequently, individual and collective experiences, where fashion and clothes, as the communicators and mediators between self and society (Entwistle 2002; Entwistle and Wilson 2001; Crane 2000), can become the key to analyse and particularly understand ageing identities. In the same vein, Twigg argues that “[clothes] offer a useful lens through which to explore the possibly changing ways in which older identities are constituted in modern culture” (Twigg, 2009a, p.93). The phenomenological approach, therefore, with its emphasis on practice and experience, enables “un-locking an understanding of what it means to be a human person situated within and across the life course” (Powell and Gilbert, 2009, p.5). When it comes to fashion and clothing, phenomenology provides the possibility to “uncover the multiple and culturally constructed meanings that a whole range of events and experiences can have for us” (Weber and Mitchell, 2004, p.4), and to establish the interrelation between the stories of individuals, objects and times they inhabit.

Through “Emotional Fit” we exploit these interrelations, with regards to mature women over the age of 55 who share common interests and enthusiasm for fashion and clothing. Their dedication has developed through various fashion related practices including purchasing, adapting, dressmaking from patterns, creating from scratch, styling, customizing, recycling

and more, in support of how they have, and continue to present themselves in their everyday lives. Moreover, as fashion and textile designers, practitioners and researchers, we aim to utilise our theoretical and tacit knowledge and skills in order to create a series of garment prototypes that cater for the stylistic (fashion) and practical/ functional (clothing) needs and expectations of mature women as identified by the sample.

For the purposes of this project we clearly distinguish between the terms of “fashion” and “clothing”. Furthermore, we subscribe to Teunissen’s rather conceptual definition of “fashion” as being “the product of a design that [is] ‘attached’ to the human body but that also [seeks] to research and explore its own relationship with the body, with identity, self-image, and the environment” (2013, p.201). Consequently, following Joanne B. Eicher we adopt the definition of clothing “as a noun refer[ing] generally to articles that cover the body” (2010, p.151). At the same time, however, we also recognise, following Kawamura, the existence of a commonly accepted simplification in which “fashion often functions as “clothing fashion, that is, the most trendy, up-to-date clothing that the majority of the people in society adopts and follows” (2011, p.9). This consideration is especially relevant when it comes to analysing and interpreting our informants’ accounts of their experiences of fashion and clothing.

3. Methodology and Data

Previous investigations into both ageing and fashion have often adopted a qualitative approach through in-depth interviews (Holland 2004, 2012; Grimstad, et al, 2005; Davis 2012) and have focused on specific aspects including older women’s clothing choices (Hurd Clarke, et al, 2009; Holmlund, et al, 2011). While these studies have revealed issues of relevance to the current research, they tell little of the meaning of fashion through the individual experience of ageing and identity in the lives of mature women. Few studies have attempted to establish the relationship between memory and clothing (Twigg 2009b, 2010). However, there are some interesting craft and design based projects that touch on the role of emotion, including Jane Wallace’s Dress Box (2009) from her Personhood in Dementia project, which utilized remnants of fabrics from dresses made in the 1960s and 1970s, to naturally trigger memories from this time (Neidderer and Townsend, 2014, p.16) and Stead’s (2005) PhD study, *The Emotional Wardrobe*, which focused on the integration of technology with fashion to stimulate and represent emotion. Some researchers have adapted a phenomenological approach by extending the traditional form of interview with the analysis of artefacts, such as, textiles, garments and photographs (Lerpiniere 2009; Weber and Mitchell 2004), and workshops for participants (Richards, et al, 2012). However, to date, only a small number of researchers have combined such methods, which makes this methodology particularly innovative with its equal emphasis on theoretical and practical research methods that seek to expand existing knowledge through an intergenerational dialogue and associated outcomes.

Accordingly, this project consists of three phases (fig. 1), and includes multiple case studies of members of the UK female population aged between 55-70. The three phases are, in

order: Research, Design and Findings Dissemination. Each phase of the study is designed to build on the findings from the previous phase and at each stage we employ different, yet, complementary research methods, as presented below. In this paper our focus is on the first two phases of the project, especially the employed methods of workshops and interviews.

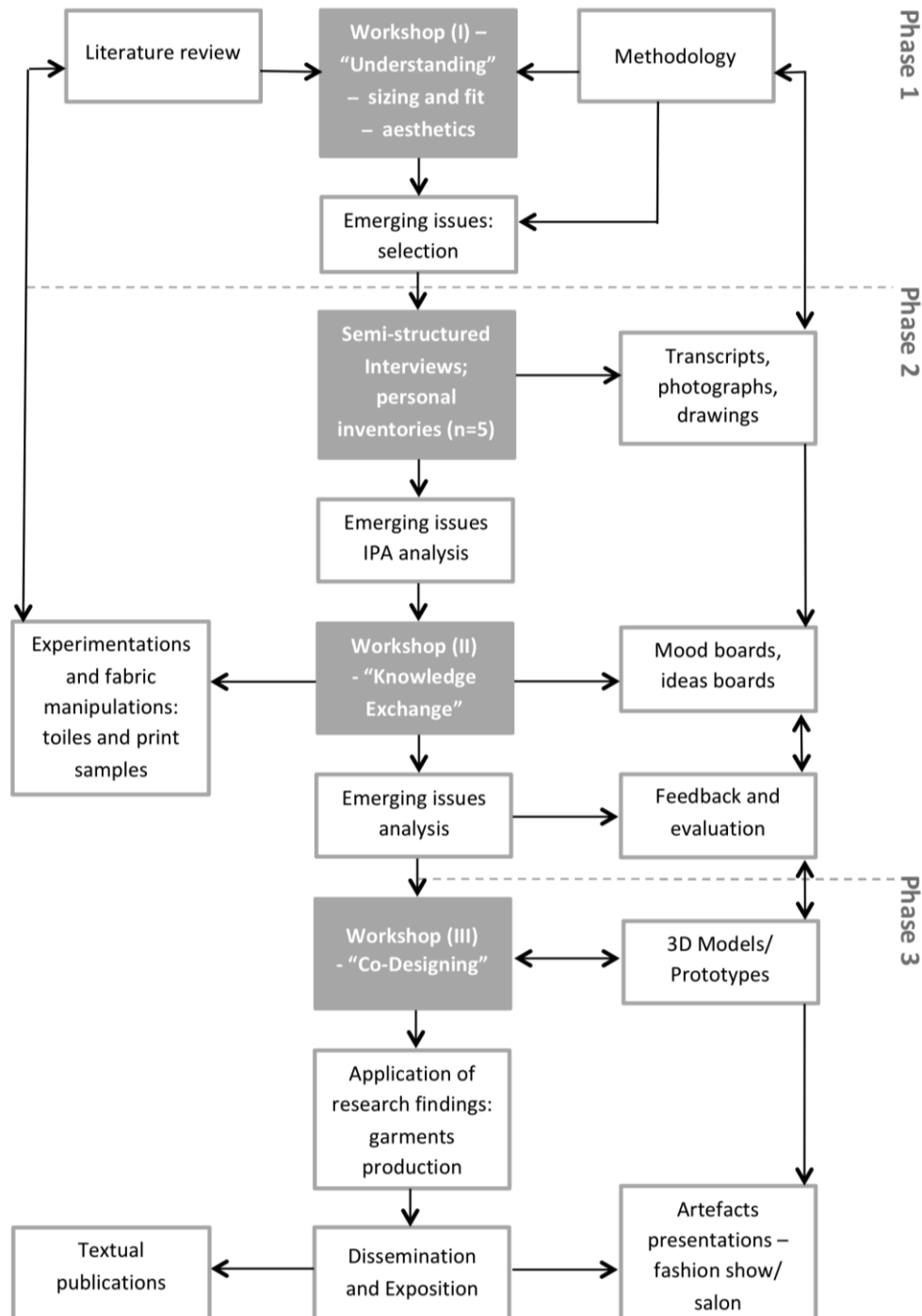


Figure 1: Emotional Fit project – research model. ©Emotional Fit 2015

3.1 Workshop (I): “Understanding” - May 2015 Nottingham Trent University

In the first stage of the project our aim was clear: we wanted to develop a primary understanding of what problems and issues older women have and share regarding fashion and clothing. In order to fulfil this aim we organised a workshop with 10 participants (tab. 1), with the three researchers as the facilitators and a research assistant. The workshop lasted 3 hours.

Table 1. Sample characteristics

Name*	Age	Occupation
Anna ^{1,2}	64	Retired
Barbara ^{1,2}	65	Semi retired/ part time university researcher
Christine ^{1,2}	65	Retired
Debbie ¹	62	Retired
Elizabeth ^{1,2}	67	Retired
Fran ¹	66	Retired
Gwen ¹	65	Retired
Hannah ^{1,2}	65	Retired
Irene ¹	66	Retired
Joanne	65	Retired

*Pseudonyms were used to protect the participants’ anonymity

¹ Participants who expressed their interest in being interviewed

² Participants interviewed

In order to stimulate the process of understanding the complexity of the participants’ experiences we first invited them to introduce themselves and freely discuss their personal issues regarding their clothes (fig. 2). Interestingly, without prompting from the facilitators most of the participants discussed their issues to be located within two areas; firstly, that of ‘fit’, including problems relating to the inconsistent sizing system on the British high street; secondly, that of ‘aesthetics’. Here, the issue that caused our participants the most frustration were the recurrent fashion trends nearly all explicitly aimed at young bodies. Our participants felt especially disappointed with the high street, as well as some designer brands, not taking into account the physical changes, naturally occurring to female bodies as they age. The women in our study felt that it was somewhat socially “expected” of them to cover the neuralgic parts of their bodies such as arms and elbows, neck, cleavage and thighs.



Figure 2: Participants introducing discussing their clothing preferences. ©Emotional Fit 2015

They also related to the skin, and its changing texture, density and decolourization through ageing. The participants also felt that the colours widely available in the shops often did not compliment their appearances; black and white were their classic/ regular choices, however, this was often dictated by the unsuitability of other colours rather than the participants' specific preferences. As indicated by the workshop participants, problems seemed to lie not in the colours per se but in their tonal range. In contrast, all of the women present expressed rather negative attitudes towards colours such as grey or beige through related descriptors of "granny-ish" and "boring". These shades, or 'neutrals' are considered as part of the staple colour palettes for the mature fashion market. Discussion around this issue raised interesting psychological perceptions between ageing and semantics, particularly the notion that once past a certain age women become "invisible" or "neutralised" within Western culture, perpetuated by a feeling that commercial fashion is not designed "for them".

Secondly, we invited our participants to tell us about their favourite and least favourite items of clothing (fig. 3 a-c), which they were asked to bring with them in the flyer sent to every participant prior the workshop. Although this was designed as an individual exercise and we spoke to each woman individually about the items of clothing they brought in (recording their accounts), it quickly developed into a group discussion where the participants had a chance to discuss their preferences amongst themselves as well as compare and contrast their clothing within the sample group (fig. 4 a-b).

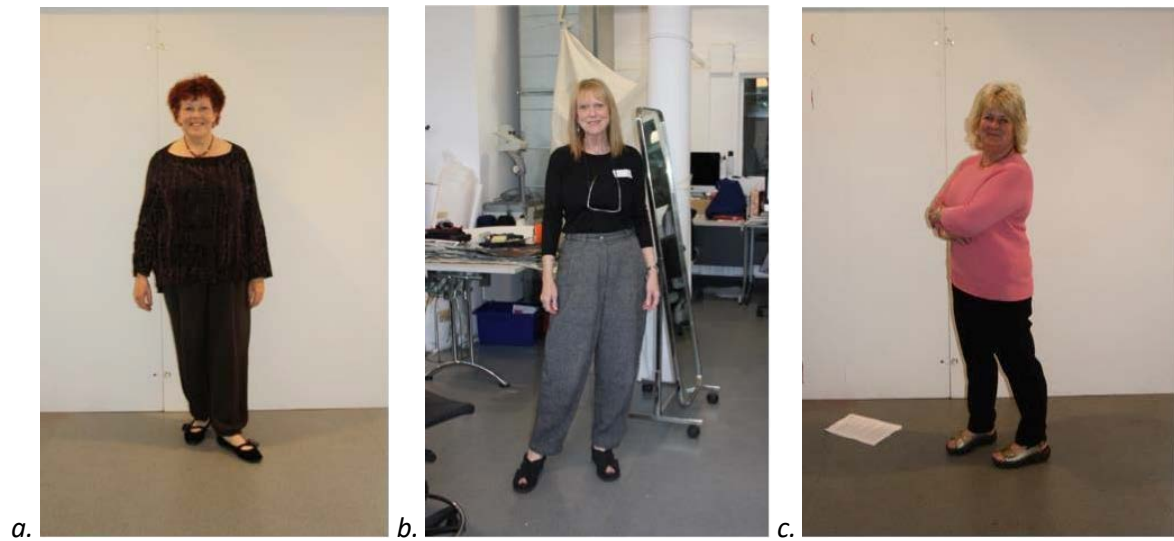


Figure 3: Participants and their favourite garments a. Christine (65); b. Barbara (65) c. Elizabeth (67) .
©Emotional Fit 2015



Figures 4 a-b Participants discussing their favourite items. ©Emotional Fit 2015

Alongside this activity, the participants had a chance to look at current fashion magazines such as Another Magazine, Vogue and Elle, and relate their needs and tastes to the various images, editorials and adverts presented in these publications. This provided a platform for our participants to directly compare the fashionable clothes on offer with items of clothing that are actually present in their wardrobes. Once again, for many this was a chance to express their dissatisfaction with the fashion solutions currently available on the market. On the other hand, these women presented a high level of creativity and widely commented that in fact they would buy some of these products but modify them according to their own needs, for example, by adding sleeves or elongating the shape of a garment. Overall, the

women commented that they did not feel there was anything that was entirely suitable for their bodies as presented to them in the magazines, and in fact they reported that they rarely buy fashion magazines themselves. Once again, this highlights the women's disconnection with fashion and clothing as produced and sold by the British fashion industry in the so-called "grey(ing) market". The final element of the workshop was to take detailed measurements of each participant (fig. 5).



Figure 5: Juliana Sissons taking measurements of one of the participants. ©Emotional Fit 2015

The accrued measurements have now been utilised in the second phase of the project (fig. 1) as data for the production of a series of bespoke pattern blocks, devised by Juliana Sissons, which will inform the development of experimental garment patterns and finally, womenswear prototypes co-designed by the researchers in collaboration with the group. The garment prototypes will be produced in different size groupings to accommodate individual members of the sample. As well as being produced in plain and textured fabrics; Katherine Townsend will lead on the development of a series of digital textile prints in which to sample selected garment prototypes. The printed garments will be designed using a simultaneous approach (Townsend 2004a) by generating imagery in response to the 3D garment silhouettes modelled on the (moving and still) women's bodies and by engineering prints within the 2D pattern pieces (Ibid). This way of working responds to the notion of the individual's form (and agency) being articulated through clothing and that this can be achieved more effectively through the sculptural integration of print and cut, image and cloth to 'contour' and enhance the physical characteristics of a woman's body (Ibid).

3.2 Workshop (I): findings

As stated in the Introduction, the research question we aim to answer in this project is: how can womenswear be designed more effectively to meet the physical and emotional

requirements of an ageing female demographic. In order to fulfil our research objectives, a key aim is to explore the potential of communicating messages between the project participants (wearers) and the designers. Similarly, Press and Cooper (2003) identify three areas of design research: understanding of the phenomenon, generating ideas and proposing solutions. The role of Workshop (I) was precisely to allow us to understand the ageing phenomenon as experienced and interpreted by the participants. Furthermore, Lawson (2006, p.125) describes the design process as “endless” and claims that designing, unlike completing mathematical operations cannot have a predetermined end and, therefore, it should be described as overlapping loops repeated within time intervals allowing for analysis and reflection. Chapman (2015) Niedderer and Townsend (2014) also argue that in order to design longevity into products, we need to incorporate lasting emotional and material as well as physical perspectives. Adapting these models is a crucial aspect of the proposed research model, with the constant evaluation of findings informing the design practice, through the testing and sampling of the developing solutions.

In this vein Workshop (I) had an exploratory as well as generative purpose, and was designed to “allow the designer[s] to see and understand the relevance of objects in a user’s life from the participant’s point of view, to inspire design themes and insights” (Martin and Hannington, 2012, p.130). The gathered visual information i.e. photos and images (such as tear sheets from magazines), were captured and stored in the form of mood and ideas boards, to serve as a direct introduction to the practical work (toiles and prototypes), which seeks to address some of the participants key design needs and preferences.

3.3 Interviews

The first element of the second phase of study was to conduct five in-depth interviews with selected participants. The interviewees were randomly selected from the participants at Workshop (I), who declared their interest in being interviewed (table 1). The interviews were designed to be semi-structured, face-to-face informal conversations, “so that the rapport between researcher and informant will be enhanced, and that the corresponding understanding and confidence between the two will lead to in depth and accurate information” (Kumar, 2005, p.124). Moreover, these interviews, conducted by Ania Sadkowska, were devised to enable each participant to explicate in detail about their individual experiences of fashion and ageing.

Each interview was conversational in style and lasted between 60 and 80 minutes, was digitally recorded and transcribed verbatim with consent from each participant. The interview schedule consisted of 16 open-ended questions about different aspects of women’s experiences of fashion and clothing, to find out about the meaning of fashion in the participants’ lives, their shopping practices and future expectations of fashion. The participants were also asked to describe critical occasions when they felt really good/ bad (positive/ negative) about the way they looked. Themes emerging from the transcribed interviews have been meticulously analysed using Interpretative Phenomenological Analysis (IPA), to build on the cultural context via the personal histories and experiences of the

participants, which will be used as inspiration to create fashion prototypes. To date analysis of the material gathered through the interviews has revealed various tensions in older women's perceptions of the current fashion and clothing system as well as contradictions regarding their expectations towards it.

3.4 Sense of belonging

To begin, the majority of the participants asserted that they felt privileged because of the generation they were part of. This was present in the narratives of all 5 participants who on numerous occasions highlighted the personal connections with certain fashion practices and behaviours originated in 1960s. Furthermore they felt extremely positive about certain British fashion designers who started their design brands in the 1960s and 1970s and are still present in the fashion market such as Vivienne Westwood and Paul Smith. From international designers two the most commonly mentioned were Yohji Yamamoto and Issey Miyake. Overall, the tone of these cultural connections was that some designers, perhaps due to their own ageing, could relate and therefore design garments more empathetically for older women. In contrast, other labels such as Biba were often discussed with considerable nostalgia. In the following extract Elizabeth (67) explains the importance of wearing some of these labels through her personal reflections:

"So it was the sixties (...) that is when it [fashion] started to really affect, yeah change people really. Yes, I can remember buying my first Biba outfit and my friend got married in Biba. So we were... and of course they had mail order then. Also there was only one Laura Ashley shop, and again at the time Laura Ashley was kind of fantastic. We went to London especially to go to the one Laura Ashley shop. Then when it kind of comes to opening in all of the towns it's not the same. It's like Next, once it started to open everywhere it wasn't as interesting. It then became stuff for the masses and it wasn't individual somehow. You had to look very hard to find individual things."

What is compelling in this extract is a certain sense of a shared generational uniqueness as well as personal sense of individuality experienced by Elizabeth from being a teenager in a period when developments in fashion were particularly dramatic. In this vein, further on in her interview she reflects: "I feel I have been very lucky that there has been Mary Quant and Vivienne Westwood and Paul Smith. (...) And I still think that man [Paul Smith] is a hero."

Similar reflections were present in all interviews. Of particular importance, is the shift in cultural and social perceptions relating to how women should present themselves. This was strongly connected to the contemporary fashion solutions of the time, as Christine (65) explained:

"I suppose... Somebody like Mary Quant was quite important for my sort of generation. Because she introduced, I mean it came with the development of tights, I think (laughs). You could wear, as I did, we could wear very short skirts and tights. And not feel as we were revealing everything. And she has, I think, introduced more the shift style."

These extracts convey that the interviewees shared a strong generational sense of belonging. Furthermore they shared positive attitudes towards certain fashion designers

who they witnessed developing their brands as well as to other designers who are no longer present in the market or have changed direction.

3.5 Fashion awareness

As well as discussing their past interest in fashion, all the interviewees expressed a strong current interest in fashion trends. However, this was often discussed in relation to their own bodily conditions such as height or weight. In the following extract Elizabeth (67) explains how she finds out about changing trends:

“I love to kind of look at fashion in magazines and even when it was the fashion show at the time. And I suppose you look and I was interested in what was translated too, from the catwalk into the everyday. And it’s interesting, and I like to read in the papers and magazines how people have taken things. And how they have translated it into more everyday things, and it can be colours, it can be shapes, and it could be hemlines. I find all of that very interesting. But I suppose I, being small and round I have never been a fashionable shape.”

A similar picture is presented by Christine (65) who explains that her own body type has become a lens through which she filters suitable fashion trends:

“So I have always looked at magazines, uhm, I have always been interested in what’s been in the shops, but, uhm. In my early days I didn’t have a lot of money and I have always been in a way conscious of my body type. So I think that is as much as anything, it’s my body type that has determined my interest in fashion.”

This type of a “targeted” fashion awareness where women exhibit a life-long interest in fashion allows them to not only understand their aesthetic preferences but also the impact of their physical condition on how clothing is presented on and through their body. Furthermore, this is critically important when it comes to developing any potential designs that target these groups of women because this evidenced a clear understanding of their “dressed body” type (Entwistle, 2002, p. 133).

3.6 Bodily changes

Another important theme that emerged from the interviews analysis was the bodily changes occurring to and affecting women’s self-esteem (Church-Gibson 2000) and sense of identity (Crane 2000) as they grow older. Interestingly, one of the most common comments in the interviews was of the specific social limitations linked to exposure of the mature female body. In the following extract Elizabeth (67), who elsewhere in her interview highlighted the importance of being influenced by Mary Quant and wearing mini skirts when she was younger, comments on the unsuitability of such solutions for older women, regardless of their physiques, who can be perceived as “mutton dressed as lamb” by “trying look young and it doesn’t work.”

Similar opinions were shared by most of the participants. In the following extract, however, Christine (65) presents a slightly different point of view:

“I am dressing for my generation of women. Who are... not wanting to look young. But who just don't want to abandon clothes, which are perhaps more youthful, yeah. So I mean, I probably do dress for my age now, because for example, uhm, I would like my arms covered up. I don't tend to wear... although I could wear lower necks (...) I don't like to show a lot of flesh, let's put it like that. So I wouldn't reveal a lot of flesh. Whether that's dressing for my age, or just dressing for me.”

Interestingly, here Christine, again highlights the importance of a certain generational identity amongst women similar to her age and social norms relating to how they should dress their bodies (Entwistle and Wilson 2001). However, despite recognising certain social limitations as to what older women should and should not wear, Christine attempts to detach herself from being restricted in this way, by explaining her clothing choices in regards to her current lifestyle – that is, she “could wear lower necks”, but chooses not to.

3.7 Personal trajectories

The final theme, which emerged from this series of interviews, was the influence of personal trajectories on our participants' current interest and engagement with fashion. The personal histories our participants shared with us differed significantly from each other. For example one woman had experienced serious health issues affecting what kind of clothing she preferred to wear to conceal changes to her body. Another participant discussed the significant impact that the death of her husband had on the way she chooses her clothes. In her interview she explained that she not only lost a great and dedicated clothing advisor in her husband, but also that now, as a widow she does not want to present herself as a woman “searching for a new husband”:

“It's almost as if they [some of her female friends] think I'll jump on their husbands or something and there is a bit of... I kind of feel I need to be a little bit more conservative about what I wear. I am not looking for anybody else and I don't want people to even think that I am, I was very happy. So it's a silly thing.”

Consequently, we argue that these personal trajectories are important when it comes to design for mature women, especially when the aim is to achieve a state of equilibrium: a sense of emotional fit between the design and the wearer.

3.8 Interviews: findings and implications

Following Workshop (I), the semi-structured in-depth interviews had an exploratory as well as generative purpose; designed to allow the researchers to understand the psychological aspects of how mature women experience fashion and clothing more deeply. The interviews revealed various tensions, as well as contradictions in relation to the participants' fashion behaviours and practices. Firstly, all of the participants expressed a strong, common sense of generational belonging, which clearly influenced their expectations, in terms of perceived connections with designers and the designing process, which they clearly valued. Based on this finding we plan to make our presence and motivations as designers as accessible as possible, working with the participants as our co-designers and potential wearers. This approach supports an emotionally durable design ethos, where products are often ‘user

tested' prior to production. It is also in line with bespoke or couture practice, but challenges commercial fashion design and production.

Secondly, the participants exhibited strong awareness of current fashion trends, however, always in relation to their own physiques. Again, this highlights the need to develop new fashion design methodologies and solutions that consider wearers unique bodily features more empathetically while considering contemporary cultural conditions. Many women expressed an interest in clothing that can potentially enhance the way they present their mature bodies rather than masking them or creating the false impression of being a younger age. Finally, it is worth re-iterating that all the interviewed women have had very different life courses resulting in unique value systems and expectations in regards to fashion and clothing. In order to be successful, the design process needs to acknowledge these personal trajectories within the constraints of the proposed research model (fig. 1).

4. Conclusion

In this paper we have presented and discussed the preliminary findings from the first two phases of the research project entitled "Emotional Fit: Mapping the Aging Female Form". The research question, which we aim to answer through this project, is: how can womenswear be designed more effectively to meet the physical and emotional requirements of an ageing female demographic. In this vein our aim is to explore mature women's relationship with fashion and clothing. The first two phases of this qualitative project involved a workshop (I): "Understanding" with participants (n=10) and a series of in-depth interviews (n=5). Workshop (II): "Knowledge Exchange" has now been conducted (July 2015) with similar and new participants (n=12) to accrue further individual measurements, test the fit of initial specialist sized blocks and toiles and to generate additional feedback and inform the developing fashion methodology through the ongoing co-designing process. Workshop (III): "Co-Designing" is scheduled to take place in April 2016. The initial results of the project have allowed us to develop an in-depth understanding of how the participants in the study experience, practice and engage with fashionable clothing on a daily basis. Furthermore the utilization of an exploratory workshop and in-depth interviews as research methods, enabled us to discover the complex nature of the participants' experience. The two key aspects identified were related to the women's aesthetic expectations, often developed throughout their life-long interest in and engagement with fashion and clothing, as well as problems with sizing and fit. Our next step (phase 3) of the project will be to continue to utilize the gathered information and measurements and respond to it via creative fashion practice including techniques of geometric pattern cutting, textile designs that respond to both garment and body shape, computerized and traditional fashion and textile crafting techniques. A collaborative, diffused design approach will support the ongoing research and subsequent outcomes through a further workshops and a dissemination event presented to other researchers and key industry stakeholders. The originality of the research methodology and its potential innovative outcomes lies in its merging of Interpretative Phenomenological Analysis (IPA);

the analysis of the women's lived experience of fashion, with a simultaneous fashion and textile design approach, that holistically considers not only the size, but the physical and emotional shape of mature women.

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From Afterthought to Precondition: re-engaging Design Ethics from Technology, Sustainability, and Responsibility

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Abstract: Despite recognizing that ethics is integral to design, and despite awareness that design brings about risks and undesirable side and after-effects, design ethics remains critically under-developed. What is design ethics? How should one broach an area as vast as design ethics? In this article, I examine three discourses that have been commonly used to engage—and to provoke—moral reasoning, awareness, and action in design. They are namely, technology, sustainability, and responsibility. Within the defined area of each discourse, I examine a limited set of debates and issues that are relevant to design ethics today. Through this critical analysis, I raise new questions and issues for design ethics. Subsequently, I suggest how a theoretically robust design ethics ought to engage with the concepts and categories of applied ethics on the one hand, and on the other, to condition this engagement with the domain-specific interests, concerns and experiences of design.

Keywords: Design; Ethics; Technology; Responsibility

1. Introduction

Despite the recognition that ethics is integral to design and design practices (d’Anjou, 2010; Devon & van de Poel, 2004; Findeli, 1994; Flusser, 1999; Fry, 2004; Manzini, 2006; Mitcham, 1995; Steen, 2015; Zelenko & Felton, 2012), design ethics remains “massively underdeveloped and even in its crudest forms remains marginal within design education” (Fry, 2009: 3). Design ethics—which is the study of morals and morality in design practices, and which encapsulates knowledge that evaluates, justifies and guides design—has yet to catch up with the extensive phenomenon of the “world as design” (Aicher, 1994). In an age when what used to be matters of destiny have now become novel burdens for decision-making (Ihde, 1990), the underdeveloped state of design ethics is perplexing. Naturally, this



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begs the question: why has design ethics lagged so far behind the reach and ramifications of design actions today?

The reasons are manifold. First, design ethics concerns a vast area overlapping many independent fields of applied ethics—for instance, the ethics of technology, robot ethics and environmental ethics just to name three. Each of these fields maintains discourses that overlap with the substantive concerns of design ethics. Yet none of these fields, to the author's knowledge, explicitly reference design or design theory. For instance, robot ethics connotes three different areas of concern, namely, understanding the ethical implications of robotic usage in society, the moral code used by the robots themselves, and finally, discussion revolving around the self-conscious ability of ethical reasoning in robots (Veruggio & Abney, 2012). Conceivably, all three areas concern design intentions and consequences. But this discourse has yet to draw from design theory gainfully. Or consider the debate on ecological restoration (see Gobster & Hull, 2000): a key (and active) discourse within environmental ethics. However, the question of whether it is ethical—or to what extent it is ethical—to first degrade a tract of the natural environment and then later restore it is also rightfully, *a question of (environmental) design ethics*. If these examples are symptomatic of a larger trend, then design ethics has yet to be significantly informed by important debates and issues outside of design. It is therefore important to draw on some of these debates and issues to further develop design ethics.

Second, ethics is challenging for design because it does not exactly fall into the professional competences of designers (Findeli, 1994). Ethics presumes not only specialized knowledge but also demands emotive engagement. Unlike cognitive problem-solving, moral reasoning requires not only cognitive processing but also “total moral engagement on the actor's part” (Findeli, 1994: 60). The moral (action), according to Bauman (1993: 54), resists “codification, formalization, socialization, universalization”. To calculate if one should jump in to save a drowning child would be immoral (Løgstrup, 2007: 85). But because design is essentially an activity characterized by distant “projectability” (Bonsiepe, 2010: 36), design also tends to deny any immediate emotive engagement that ethics presumably requires. To add to this, design problems are frequently ill-defined, if not outright “wicked” (Rittel & Webber, 1973). Moral values in design and commitment to these values only become clearer as designers struggle through the problem; these values are rarely present by default at the outset of design.

Finally, ethics could be categorized under what Schumacher (2004) suggests as divergent problems. In contrast to convergent problems—where successive attempts to solve the problem gradually coalesce and converge on an answer, a divergent problem becomes more divergent the more it is clarified and logically developed—until “some of them appear to be the exact opposite of the others” (Schumacher, 2004: 122). Ought one lavish a year's wages to honour a noble person who is about to be executed, or use that lavish sum to help the poor? Should one stay behind to take care of an elderly relative or leave to join the fight against an evil empire? Or should a designer abide by his convictions at the expense of admitting to undesirable consequences, or to avoid these consequences at the expense of

abandoning his convictions (Weber, 1981)? These are stark dilemmas. Yet even in their reductive starkness each depicts some of the deepest moral perplexities of the human condition. Is there then any overriding principle to resolve these dilemmas? Or how should consequences be weighed against integrity, or vice versa? To the extent that the field of ethics offers answers to these questions, the answers tend to be diametrically different. In this way, they only reflect the highly pixelated landscape of contemporary ethics today comprising of many divergent frameworks and arguments. While there is great richness in divergence, it is tantamount to an intractable complexity for ethical guidance—which makes for an extremely challenging task of finding out just what is the ethical thing to do in design. However, admitting that obstacles exist for design ethics is not the same as denying its plausibility. Despite obvious difficulties and challenges, different design theorists and practitioners have persisted in envisioning and articulating a design ethics that can inform, clarify, and improve design practices. This task is all the more pressing when designers can no longer count on social norms to provide guidance in many matters of new technology and design (Flusser, 1999). In this context, design ethics is crucial for raising moral awareness, evaluating moral intuitions and clarifying the ethical dimension in design decision-making. Developing the substantive content and guiding vectors of this ethics is therefore a next important step.

1.1 Methods and Aims of Paper

My arguments in this paper follows from the following three premises: (i) design ethics remains under-developed; (ii) but discourses on design ethics—both within and outside of design—exists; (iii) however, little, if any, effort has been devoted to collate and analyze these discourses used to engage the ethical in design. Therefore, a critical survey of a relevant but limited set of issues in each of these discourses—which are namely, technology, sustainability, and responsibility—to further clarify and consolidate design ethics is warranted.

However, this survey is hardly comprehensive. This survey only attempts to identify a limited number of ideas cogent and emergent to design ethics in these discourses. Through this effort, my arguments raise new issues and questions for future work in design ethics. Recognizably, each discourse is vast and the enterprise of many book-length endeavors; where I have chosen to start in each of these vast discourses is therefore to some extent, idiosyncratic. But the choice of these starting points is not entirely inexplicable. Where possible, I begin from canonical origins; in other places I construct my own premises—all with the aim of conveying concisely the kernel of each discourse as it relates to design ethics. And finally, while the broader choice for these three specific discourses may be charged as a case of biased sampling on the dependent variables, each is however replete with literature and data that can spur further discussion in design ethics. If the author is guilty of biased sampling, then it is only because the author has to begin from the most likely places.

2. Technology: from Instrumentality to the Morality of Things?

Martin Heidegger (1889-1976) could be credited with one of the earliest insights on the moral ruptures brought about by modern technology on mankind. According to Heidegger (2004), modern technology has transformed the moral relations between person to person, and of persons to the world. Instead of treating persons or certain entities in the world as ends in themselves, they have been transformed into means by modern technology. In other words, modern technology, among other attributes, has precipitated the nihilism of absolute instrumentality.

But this nihilism never quite materialized. What emerged instead was the triumphalism of means, where means became its own absolute ends. For instance, where is that fastest car in the world going? What are the reasons for building the tallest building? And why is a watch that answers our phone calls even necessary? Rittel calls this phenomenon the “curse of feasibility” (Protzen & Harris, 2010: 223): ‘I do because I can’. In parallel, C.W. Churchman suggests that the most startling feature of the 20th century is that mankind has developed such elaborate ways of doing things while at the same time have developed no way of justifying for any one of them (Churchman, 1961: 1). Indeed, the more pronounced and articulated technology becomes, the more humanity is exposed to the unanticipated side effects and risks of harnessing technology (Wolin, 2001). And attempting to address these side effects and risks with more technology only perpetuates the cycle of unanticipated and undesirable side and after effects (Beck, 1992; Findeli, 1994). The power, as the willingness, to harness technology has far exceeded the capacity to know its actual consequences, and this in turn creates a class of new problems that behoves a new ethic, hence the ethic of responsibility (Jonas, 1984).

Even so, the arguments mounted by Jonas and others on technology and ethics are often “defined in reference to large choices” (Manzini, 1992: 5). Manzini (1992) suggests there are few hints in these arguments for constructing a system of values—an ethics of design—for everyday design decisions. To the extent that Manzini is correct, little insight has been transferred from the macro-ethics of technology to everyday design practices. And to the extent Jonas’s arguments remain valid, the triumphalism of means persists. Often, there is little substantive justification for why many technologies and products exist except for reasons of frivolity and increasingly, because of reckless greed. Like in Jonas’s milieu, the future of this present age remains at risk—and in part due to design (Fry, 2009). Presently, design facilitates the ceaseless cycles of new product development, which in turn legitimize design. In this context, design and design ethics can be self-critical but it cannot do so without also being threatened by self-negation. Therefore, there is little design ethics can do in this paradigm of technology beyond tinkling warning bells (see Beck & Willms, 2004: 204). Is there then another paradigm to develop design ethics in relation to technology? A patchy discourse on the morality and moral mediation of artefacts has emerged (Chan, 2015; Flusser, 1999; Latour, 1992; Tonkinwise, 2004; Verbeek, 2008; Verbeek, 2011). Unlike the instrumentalist paradigm of technology where technology is perceived to be external to

moral choices, this discourse posits technology as a mediator in moral choices. In the instrumentalist paradigm, technology is either used or being abused by the moral agent; technology is a value-neutral entity and ethical attributes only reside within the agent. By extension, an ethics of technology associated to this instrumentalist paradigm could only ask if the ends justify the means, or whether certain consequences are justifiable, and by what ethics, and to what extent is the agent virtuous or not in the use of technology. In other words, this paradigm would only admit to the view that moral agency begins and ends with the human, moral agent.

But in the mediation paradigm, it is no longer clear if moral agency resides in the human agent alone. In this paradigm, moral agency is seen as the outcome of an assemblage made up of human agents and technology. And while the exact extent of technological mediation remains unclear, the example of the obstetrical ultrasound technology goes to show how the moral assemblage comprising of doctors, patient, foetus and technology has been altered because of ultrasound (Verbeek, 2008). In this case, the visualization offered by obstetrical ultrasound has opened up new moral choices that were previously unavailable. And even if one demurs on this view, one is unable to deny that design parameters in technology—for example choosing to represent the foetus at a certain size on the viewing monitor to accentuate its personhood (Verbeek, 2011)—directly implicate design ethics.

Admittedly, there is still little consensus on the mediation paradigm (see Chan, 2015). In Verbeek's case, he suggests that the mediation paradigm of technology is at least useful to design on two counts (Verbeek, 2008). First, this paradigm is able to develop a moral assessment of technologies in terms of their mediating roles. And second, ethics is able to shift from the domain of language to medium of materiality. In the context of design ethics, I suggest that it is the latter suggestion that invites further reflection. To the extent that ethics can be materialized, ethics *has to be designed*. A recent thought experiment carried out at the University of Alabama (Birmingham) asks if self-driving cars—or autonomous vehicles—should be programmed to 'murder' its occupants, rather than to kill the pedestrians in the event of the classic Trolley problem (Windsor, 2015). There are varying forms of the Trolley problem; but all of them comprise of a moral dilemma between invoking a deliberate intentional harm, or to reject that intent in favour of some unpalatable consequences (e.g., between intervening by intentionally running the trolley into an innocent bystander, or to do nothing and allow the trolley to run into a small group of bystanders). In designing these autonomous technologies, it has become clear that designers can no longer avoid the subject of morality in technologies. If so, then it is not so much a question if mediation exists but to what extent mediation occurs and at what point does this mediation begin to assume a moral agency similar to the human agent. Invariably, one then has to ask: can a designer ever be responsible enough to determine, on behalf of other moral agents, the ethical action through design?

3. Sustainability: a Paradox for Design?

“Everything now has to be sustainable...” (Bruckner, 2013: 47). Sustainability has become the hegemonic social ethic today. And to this extent, the term ‘sustainability’ has also become almost meaningless (Russ, 2010). In design and elsewhere, this term has taken on a wide gamut of different meanings—everything from limiting the impacts of design on the environment to a moral obligation for future generations, and perhaps even to an assuagement for increasing consumption. But scrutinized more closely, sustainable design today raises many disconcerting questions.

From one perspective, Fry (2012) suggests that market growth constantly negates the impact reduction gains of sustainable products. Sustainable design, which by one formulation is at least to reduce the impact of design on the environment, is nullified when the scale of its realization in material and energy consumption exceeds its aggregate impact reductions. The Jevons’ Paradox and the Rebound Effect are two other well-studied phenomena that point to the paradoxical possibility when widespread adoption of sustainable design can turn out to undermine the original aims for sustainability. From another critical perspective, sustainable design is perceived to have been hijacked and appropriated by agendas wholly unfamiliar and perhaps even inimical to its original meaning for its morally approbative cover. The highly engineered ‘eco-cities’ are indeed forms of sustainable development in terms of environmental performance; but incurring the various costs associated to building new cities when existing ones still offer ample opportunities for efficient re-adaptation is not sustainable. Harvey (2010) suggests that (new) urbanization is but a channel to absorb excess capital to better stabilize capitalism. These two perspectives do not nullify the need for sustainable design. But they do behove a closer scrutiny of what sustainability and sustainable design appear to promise.

Because sustainable design is a vast discourse, I shall only limit my arguments to two issues relevant to design ethics. Firstly, sustainability tends to suggest values associated to conservation, limited use or even, preservation of limited and especially, non-renewable resources. On the other hand, design tends to suggest values associated to exploration, experimentalism and expansiveness. In other words, sustainability tends to have prefigured aims; design does not. And while sustainability appears to constrain or even restricts, design assumes nearly the opposite. Admittedly, this relationship is more complex than how it has been portrayed; after all, it is possible to engage in exploratory and experimental design without consuming non-renewable resources. Yet to design is to admit to an open-endedness—that is, to experience epistemic freedom (d’Anjou, 2010; Protzen & Harris, 2010)—that is radically different from the boundedness suggested by the prefigured aims of sustainability.

On this, how designers modulate this freedom in relation to sustainability is telling. In contrast to d’Anjou’s (2010) view on embracing a kind of Satrean freedom in design, Rittel argues that such Satrean freedom instead inhibits designers. To design, the designer has to limit this freedom by imposing some kind of boundaries—tantamount to the imposition of

constraining logics (i.e., ‘*Sachswange*’) found outside the immediate system of design (Protzen & Harris, 2010: 192). In other words, complete or radical freedom overwhelms as it also paralyzes (Fromm, 1994). In this context, sustainable standards and norms then easily become a source of self-justifying constraints used to initiate and to justify design. The ecologically justified showcase village of Huangbaiyu is a case in point (see May, 2011), where existing, local and arguably sustainable practices were eliminated in favour for the sustainable forms imposed by the designers. Because sustainability is morally approbative and because design is also incentivized by various institutions (e.g., Leadership in Energy and Environmental Design, or LEED) to promote sustainability today, the designer can be led into the moral hazard of prescribing unnecessary ‘sustainable’ features that ought to be avoided in the first place.

Secondly, while it is possible to design for non-human interests, overwhelmingly design has been deployed to serve human interests. The primacy of positioning human interests first above all other interests can be argued as a form of anthropocentrism (Sarkar, 2012), and anthropocentrism has been argued as the source of the environmental crisis today (Rolston, 2012). Admittedly, not all forms of anthropocentric activities are harmful to the environment; irrigation technologies used in certain conditions, for example, has led to the flourishing of biodiversities that otherwise would not occur naturally. Even so—visibly and overwhelmingly—the primacy of anthropocentrism has resulted in rapacious exploitation, environmental degradation, destruction of non-human species, and harmful wastes: “where design is, there is waste” (Bauman, 2004: 30). If so, then to what extent is it possible to concede to design ethics, when the subject matter of this ethics—design—underwrites the very source of the environmental threat itself?

On this point, design ethics today has little to say. The hegemony of sustainable design has endorsed the belief that design is needed to create a more sustainable world. But at the same time, this same belief also conceals the damage design is incurring. To some extent, this belief is not reproachable, for “things cannot be made ethical without design” (Fry, 2012: 220). Yet because a robust design ethics has to be self-critical, it is equally important for designers to question and to confront the various anthropocentric causes that they serve or materialize through design (Fry, 2004). Even so, this dilemma is not entirely up to design to resolve. After all, there is still little consensus today on how to value non-human species independent of anthropocentric values. Until there is knowledge and consensus on how to value non-human species, design cannot be actualized to serve non-human causes. In the absence of this non-anthropocentric valuation system, the obvious recourse is then to establish areas of conservation, tantamount to natural protectorates, where tracts of natural environment and natural species are protected from further impacts of human actions. But on this, the irony cannot be more profound: by creating these protectorates, humans have once more accentuated the distinction between our artificial world, and the natural world (Rolston, 2012). In doing so, this has just thrown anthropocentrism into a sharper relief—and once again, by design.

4. Responsibility: A Question of Design?

What is responsibility in design? According to Fry (2004), responsibility in design has so far been problematically understood and defined—and mostly not going beyond the obligation for professional due diligence. Generally, responsibility has been portrayed in the following two ways (Fry, 2004): the first entails responsibility to clients and users in the form of a professional ethic or code of conduct; the second admits to a broader social responsibility not unlike what Papanek (1985: 54) suggests as the “social and moral responsibilities of design”. To the extent that this distinction is warranted, it has been made on practical grounds. Different professional codes—for example, in architecture, planning and engineering—are needed to address problems and issues peculiar to these different design professions. In other words, this distinguishes a *responsibility to* clients, superiors and rules, from a *responsibility for* the welfare of others and the environment (Bauman, 2001).

Justly, Fry (2004) argues that the delimited sense of professional ethic as ‘responsibility to’ is inadequate for evaluating the deeper premises of design projects and the broader impacts of the designed artefact. After all, a ‘responsibility to’ rules, norms and superiors makes one unwilling to stand up against dominant institutions or question them even when moral judgment calls for resistance (Bauman, 2001). Along this line of thought, Marcuse (1976) suggests that professional ethics tends to affirm and consolidate the status quo, and it cannot be relied upon to improve social inequities. For these reasons, professional ethic as ‘responsibility to’ is necessary but not sufficient in guiding the responsible designer. Yet even if one turns to the perceivably broader—and more ontological—‘responsibility for’, this venue poses its own challenges. Responsibility is inexorably always personal and contextual; one is beholden to a specific another, which forms the kernel of responsibility. Therefore, this ‘responsibility for’ the welfare of others and the environment may very well play an aspirational role for the responsible designer. But to demand anything beyond this is to venture into a philosophy that leaves duty without a context, and one that risks obscuring the relation between virtue and reality (Murdoch, 2014: 89).

To bypass this obstacle, it has been suggested that design education offers a venue for teaching responsible creativity (Maldonado, 1965). Along this line of thinking, being responsible is less about knowing a priori definitions of what responsibility entails, but more about the a posteriori task of cultivating a morally responsible designer. A person can know what is good, yet refuses to do it (Aristotle, 2005). But a good person by definition, does what is good and proper. Even so, there is some tentativeness in relying on education to cultivate moral character (Findeli, 2001). This tentativeness is not without reasons: for in the context of a pluralistic and liberal society, it is not only difficult to decide what kind of moral character one should cultivate, but also that character education implies the questionable inculcation of desirable traits and virtues (Doris, 2003)—but whose desirable traits and virtues, one asks? More troublingly, Doris (2003) also discovers that moral behaviour is extraordinarily sensitive to variation in circumstance. Drawing on evidence from moral psychology, Doris questions if there is even such a thing as a ‘moral character’—an attribute that all practices of character education must first presume.

But counter-arguments are no less compelling: not only are the methods and choice of subjects of many experiments in moral psychology questionable, but also importantly, they rely on fictional moral scenarios to draw conclusions of actual moral realities (Damon & Colby, 2015). Damon and Colby argue that even if one accepts the moderating influence of circumstances on moral behaviour, one cannot deny the evidence of a sustained dedication to a moral cause in cases they have studied, which they further suggest as evidence of moral character. Because philosophical horns remain locked on this debate, and because there are also well-justified opposition to character education in liberal societies, it is uncertain—insofar as the science and evidences go—if design education can hope to teach anything more than basic moral reasoning skills and theories in training the responsible designer.

Clearly then, whether one advances by first specifying what responsibility entails for design, or ventures into virtue ethics as character education, one encounters nearly insurmountable obstacles. Is there another way to understand design responsibility, and in tandem, to teach this responsibility without explicitly invoking character education? One obvious avenue—altogether neglected by moral philosophers and psychologists—resides within the quintessential act of design itself.

On this, Meadows (2008) presents a possibility where responsibility could be designed. In her example of designing a new town, the designer could specify that all parties that emit wastewater into a stream to place their intake pipes downstream from their outflow pipes (Meadows, 2008: 179). This way of conceiving design is however not new. Burckhardt (2012) calls this the invisible parameters of design in contrast to visible and materialized parameters. In this case, the designer who recognizes that the moral hazards of free-riding begin in the materialized (or visible) counterparts of pipes and drains is then able to design a complete—and responsible—system: one which no longer divides the world into a realm of objects and (invisible) institutions. A designer who is able to do this clearly understands responsibility beyond professional ethics on the one hand, and on the other hand, is motivated to actualize this moral insight through design. One then wonders if responsibility could then be taught neither through theoretical ethics nor character education, but practiced through such a unified form of design itself.

Even so, this approach is not without its own set of problems. Empirically, designers work in systems that are inherited, and formed by, prior design attempts. Considering Meadows's specific example, one could argue that it is very rare for a designer to have complete discretion over a complete design system. But more importantly, design ethics again questions if designers ought to be given this discretion—even if it were possible—to design responsibility. In contrast to Latour's (1992) version on moral artefacts—for example automatic door-closers and automated seatbelts, which 'clean up after us (i.e., the irresponsible 'us')'—Meadows's approach alters something deeper and more systemic in the constitution of our lifeworlds. On surface it appears to naturalize the volition for responsibility. But in substance, this volition is merely obliged by the starker realities of self-preservation.

5. Conclusion: A Modest Proposal

Engaging the three separate discourses of technology, sustainability and responsibility respectively in this paper, I have demonstrated how examining each discourse could yield its own issues, questions, and insights for design ethics. In each discourse, the connections to design were clarified and following this, a few conceptual blockades for design ethics were also identified. Specifically by ‘blockades’, I am referring to the epistemological limits in what design ethics assumes as its operative paradigm. For example in technology, design ethics can continue to advance fruitfully within the instrumentalist paradigm of technology. But what design ethics is able to claim will likely be limited by the foundational assumption of this paradigm, which is the instrumentalist view of technology. Or design ethics can switch tack to explore the mediation paradigm, where as discussed, knowledge remains uncertain. But this is precisely the epistemological territory where thoughtful discussions are most needed from the design disciplines. It is therefore not unreasonable to consider that future work on advancing design ethics lies in surmounting known blockades, or dissolving them altogether. Insofar as the identified blockades in this paper are genuine—or so the author tried to ensure that they are—then my arguments have contributed to design ethics by making its working targets clearer.

Subsequently, in seeking to understand design ethics through these three discourses, one quickly discovers how design is beginning to alter the very conception of ethics as the “direct dealing of man with man” (Jonas, 1984: 4). In other words, has ethics, as it is conventionally understood, been transformed by the capacity to design? In pondering this question either through the issues raised by the design of autonomous technologies, or the ones implied by the act of designing responsibility, design ethics comes close to a form of *ethics of design* rather than *ethics for design*. While the latter involves applying existing ethical frameworks and principles to evaluate design actions—which also render design ethics indifferent from any other field of applied ethics—the former is resoundingly a new epistemological category. In ethics of design, it is implied that the capacity of design has developed far enough to engender its own ethical issues and perhaps, even alter the conception of ethics itself. After all, how should designers or philosophers even come to terms with a capacity that when fully exercised, extends to specifying the fabric of responsibility itself?

Finally, if my limited but systematic review of literature pertaining to *ethics (or ethical discussions) in design* over the last fifty years is any indication, writings on ethics have always been sporadic. Yet in recent years, writings on ethics have in fact thinned—and this is taking into account the relevant ethical discussions on design mounted from other discourses, which this paper attempts to account for three of them. For a subject matter that has become visibly important, an inverse trend and attention on ethics in design is more than disconcerting. To this I entreat a modest proposal: if all scholarly and professional reports or papers in design henceforth could include a short section on ethics, design may well find itself in the diametrical scenario with much emerging content on ethics. But this I reckon as a happier—and necessary—scenario than a poverty of ethical discourse in present day

design. In doing this, it is highly likely that design ethics, which occupies the seat of an afterthought in design studies today, can shift to the spot of design's precondition.

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Design for Resourceful Ageing: Intervening in the Ethics of Gerontechnology

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Abstract: This paper discusses an innovative approach to the design of technologies for older people. The approach contains a critique of “gerontechnology” as taking decisions out of the hands of older people and materializing what it means to live healthily and well into “foolproof” designs that easily become inappropriate in the variety of situations in which older people end up using them. The proposed design approach focuses on re-delegating such ethical decisions to the point at which technology is used. It does so by considering technologies as *resources* that can complement the ageing competences of older people and adapt in a variety of ways. To gain design knowledge of the way existing technologies as well as prototypes function as resources across webs of practices, and the dimensions of ‘openness’ along which they may adapt within such practices, the approach enlists networks of everyday things as co-ethnographers.

Keywords: ethics; gerontechnology; resourcefulness; thing-ethnographies

1. Introduction

The demographic trend of an ageing society has triggered a range of new products and services. The EU Ambient Assisted Living program alone (2008-2013) had a budget of €600 million, half of which was public funding. A number of areas spanning the fields of engineering, information technology and human-computer interaction (HCI) have developed various assisted living technologies and care systems targeted at “older adults”. This type of technology is also referred to as gerontechnology (e.g., Bouma, Fozard & Van Bronswijk, 2009).

Research by social gerontologists, who focus on social aspects of gerontechnology, indicates that a widespread problem with the growing number of technological innovations for the elderly is a mismatch between their designed properties and the variety of situations in



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which they are used (Neven, 2015a,b; Peine, Rollwagen & Neven, 2014; Gomez, 2015; Aceros, Pols & Domènech, 2014). Such mismatches lead, on the one hand to frictions in the everyday lives of users in the form of irritations, disruptions or even safety risks, and on the other hand to partial or complete rejection of these technologies (Hyysalo, 2006; Neven, 2010). These researchers identify two main problems underlying these mismatches. The first is misconceptions about ageing among technology developers; and the second a tendency of designers to design for single, fixed-use scenarios. Each will be discussed in more detail below followed by a discussion of the ethical implications of such problems.

1.1. Misconceptions about ageing

Reflecting mainstream public discourse, ageing and in particular the ‘greying society’ tend to be viewed as a problem amongst developers of technology for older people (Neven, 2015b). Related to this idea about ageing as a problem, the stereotype image of older people is that of frail, vulnerable, immobile and passive (Harvey & Thurnwald, 2009; Kendig & Browning, 2011), which resonates with the so-called “fourth age”, final life stage category (Laslett, 1989). However, the much larger group of healthy, active, independent “young old” or “third age” older people neither match nor identify with this image. An example described in Neven (2010), where older people are asked to interact with a care robot, indicates that they like the robot and think it is a good product, but when asked if they want to have one themselves, give a clear no. These people saw the care robot as a technology that was suitable for others – old people in poor health – a group that they did not consider themselves part of. Moreover, this group is far from being homogeneous (Peine & Neven, 2011). Not only is there great variety in the everyday lives, needs and motivations of ageing people, these needs and motivations are also continuously changing with the changing capabilities and routines of an ageing body (Thompson, 1992). Therefore, mismatches between the stereotype image and actual lives of elderly people also exist on very practical levels. Examples are telecare systems designed for indoor use only, while many older people spend some or even most of their active time out (Gomez, 2014) – and even feel they should in order to adhere to images of “active ageing” (Aceros et al., 2015), and pill dispensers that (implicitly) assume that their users get up at the same time every day and never get to spend a night away from home.

1.2. Limits of designing for single, fixed-use scenarios

With the image of ageing as a problem and older people as frail and passive comes the view of older people as technologically illiterate (Durick et al., 2013). In line with this image, designers tend to make things that are “foolproof” (Hyysalo, 2006). The statement of a designer of devices for older people that “one button is enough for them to operate it wrong” (Neven 2015a, p. 40) illustrates this tendency. Such “foolproof” designs currently developed for older people – or better their stereotypes – do not match their everyday lives, creative capital and identities (Neven, 2010, 2015). A device with little or no ways of controlling or adjusting it can only act according to the assumptions and related scenarios

that it was designed for. This results in a “passive script” in which the user has little other option than to passively undergo the operation of the technology – and indeed the question rises whether that is actually still use (Neven, 2015a). Such products limit or negate possibilities for innovation “in use” and adjustment to the varied and changing situations of use in which people may end up (Fischer & Giaccardi, 2006). As we will argue below, this tendency to develop narrow-scripted designs, which easily become inappropriate in the variety of use situations that older people encounter as they age, invokes ethical concerns.

1.3. Ethical decisions in design practice

It has long been acknowledged in design research that technology design practice is a type of activity that contains implicit and explicit ideas about right and wrong conduct and in particular, the conduct of those who use its designs (Akrich, 1992; Friedman, 1996; Sengers et al., 2005; Verbeek, 2005). These ideas enter the world materialized in designed artefacts where they play a part in shaping actual conduct in these use practices – and beyond. As such, technologies “give material answers to the ethical question of how to act” (Verbeek 2006, p. 361) and ethical ideas that exist in design practices enter use practices.

Gerontechnology often underlies the assumption that without a technological intervention, users are somehow incapable of engaging in cognitive or physical activity (Östlund, 2005; Rogers & Marsden, 2013). Needs that are addressed by the technologies are virtually always biomedical needs or, more rarely, psycho-social needs related to loneliness, but in any case assume some sort of disfunctioning (Peine & Neven, 2011). Gerontechnology can therefore be argued to over-emphasize the need for “compensation” (of declining cognitive and physical abilities) and “prevention” (of the consequences of such declining abilities) (Peine & Neven, 2011). While existing technological solutions informed by these principles offer value in certain situations, they are unlikely to apply to all users, or to remain appropriate in the long term.

Building on this idea, Fozard (2002) acknowledges the transitional quality of old age and suggests that designing for an ageing body means that designing cannot stop with the use of a designed solution. It must continue through its use:

“gerontechnology significantly expands the philosophy of human factors engineering and consumer oriented product design because the interaction between individual ageing and secular changes in the environment over time is not static” (Fozard, 2002, p. 139).

This position is echoed in engineering by McBryan, McGee-Lennon and Grey (2008) with a proposition for how to design complex and dynamic home care systems, and by Durick et al. (2013) in HCI with their demystification of ageing myths in technology design. Similarly in ICT, Winthereik and Bansler (2007) advocate for the need of developing ICT infrastructures in support of integrated care that acknowledge that organizational practices, roles and identities are mutually transformed and entirely new practices are created simultaneously.

However, the idea of “care technologies” still implies a technology taking over part of the responsibility for the health of people and thus contains judgments of what is healthy to do. While some older people do indeed require care (i.e. for someone or some-thing to take over part of the responsibility for their health and wellbeing), the general tendency of taking ethical decisions out of the hands of virtually all older people is in our view unethical design practice. In this paper, we present a design approach that aims to shift ethical decisions about how to live healthily and well to situations of use. We do so by focusing on the concept of resourceful ageing. The following sections will first explain what we mean by resourceful ageing, what our view on ageing means for the role of design and finally, how we propose to tackle its challenges by using things as co-ethnographers. The final section of the paper will reflect on the proposed approach and its ethical implications.

2. Designing for resourceful ageing

Fundamental to our approach is a different view on ageing. Rather than as a problem, the fact that people are reaching an older age can also be viewed as an achievement. Countering stereotypes of older people and addressing the problem of inflexible technologies designed on the basis of these we promote a research and design disposition that views ageing as something positive and places emphasis on empowering older people to deal with the effects of an ageing body in a wide variety of ways. A novel angle that the approach takes in this respect is that it does not focus on the fourth age, the “old old”, as the vast majority of design projects has done in the past (Peine & Neven, 2011). Instead, it focuses on the understudied group of the third age, the so called “young old” that lead active, independent lives, but are noticing first signs of older age in the form of changing physical and mental capabilities.

In line with this view, it considers older people not as technologically illiterate, but technologically differently skilled (Neven, 2015b), incorporating the idea of technology generations (Docampo, Ridder & Bouma, 2001). In this idea, older people are certainly very well capable of creatively finding solutions to the challenges that they encounter as they age (such as changing skills and self-images), by using the everyday things that surround them as resources. A nice example is described by Brereton (2013), who relates the story of 82-year-old Maria who has found creative ways of negotiating her limited mobility and eyesight with a range of objects and routines, such as four fixed phones in strategic spaces of her home, strategically placed magnifying glasses and a key on a string that she can throw down from a window after checking who is at the door. Another story is that of an old woman using her walking stick as a phone by knocking on the ceiling whenever she wants to contact her neighbour and receive help with shopping in exchange for a cup of coffee (Forchhammer, 2006).

Therefore, rather than aiming to develop “innovative technologies that serve well-defined purposes” such as “optimal health and independence” (Bouma et al. 2009; p. 68), the approach focuses on empowering older people to age resourcefully. In our view, resourceful ageing is about continuously reinventing the practical arrangements of everyday life as the

body ages, but also as preferences and desires of older people develop. The role of technology design then lies in allowing for resilient, independent lives that people remain in control of.

2.1. A focus on resourcefulness

Resources are technologies that are appropriate for a wide range of use situations because they place judgments about ways of use and purpose in the situation at hand. To illustrate this point, an example on toys. As a child grows up, it stops playing with its jigsaw because it isn't challenging enough anymore. But its balls, blocks, crayons and cardboard boxes remain interesting toys, arguably into adulthood, because they allow for a variety of ways of playing. While the jigsaw contains a clear idea of its right way of use – all the pieces in the right place – the ball, blocks, crayons and cardboard box do not. Rather, they function as resources for play and obtain their purpose in the situation of use. This example resonates with the aforementioned case of 82-year-old Maria, who has found creative ways of negotiating her limited mobility and eyesight by using the everyday things that surround her routines as resources.

Resourcefulness is not a property of a person or a technology alone. Rather, it is something that emerges from the way they work together (Desjardins & Wakkary, 2013; Wakkary & Maestri, 2008). Using technologies as resources includes skills of achieving purposes in creative, new ways, but also of adjusting purposes to means. Besides offering resources to creatively deal with their everyday life challenges, design for resourceful ageing aims to enable and empower older people to adjust purposes to means according to their own judgment of the situation, while taking into account their varied and changing skills and capabilities.

Therefore, resourcefulness requires technologies that offer a range of competences that are accessible with the varied and changing skills available to their users, and make sense in their lives. While resources aim to be open in terms of their intended purpose, a completely open design does not exist. If there is a design, decisions have been made about what it is, and therefore what it isn't. Any design has openness on certain dimensions, and "closedness" on others. In terms of technologies that support resourcefulness, a main challenge is therefore to identify appropriate dimensions of variety across use practices. To tackle this challenge, we argue that a view on technologies and people as co-performers of practices is helpful.

2.2. Considering technologies as co-performers of practices

In their study into vacuum cleaners and the discrepancy between their expected and actual lifespans, Salvia et al. (2015) find that while vacuum cleaners, in particular the fully automatic type, take responsibility for cleaning floors, they are not (yet) capable of maintaining themselves. Therefore, people have responsibility for this part of the "hybrid system" of vacuuming (which they do not always take). Viewing the tasks and

responsibilities of vacuum cleaning as *distributed* between people and machines helps these researchers explain the early disposal of vacuum cleaners in new ways.

Similarly, Kuijer and Giaccardi (2015) reflect on historic change in laundry care by viewing technologies and people as co-performers of practices. This view reveals that over time, tasks in laundering have been delegated – a term used in this context by Latour (1992) – to increasingly “competent” washing machines. While early versions were only capable of turning round a ladle at a steady speed, washing machines today are able to wash and dry garments practically autonomously. It also highlights is that while people have characteristics that make them particularly suitable for certain tasks, such as handling garments and judging whether a garment needs washing, technologies have others, such as turning round a tub at high and steady speeds or measuring the exact weight of a load. By viewing competences as distributed between people and technologies, the idea that technologies have certain unique qualities, characteristics and capabilities that people do not have means that technologies can complement people in areas where they excel.

Moreover, when looking at a distribution of tasks and responsibilities between people and technologies, it becomes clear that people are particularly capable of making situated judgments in *non-standard situations*. For example, a garment that comes out of the washing machine but still has stains on it can nonetheless be judged, in the situation, as appropriately clean for its intended use. Reckwitz (2002) refers to these non-standard situations as “*everyday crises of routine*” (p. 255, emphasis added) indicating that they are in fact a common occurrence. Besides variety in the ways in which older people live their lives, and the variety of practices in which technologies-as-resources are envisioned to be used, such crises form another type of variety in use situations. In these non-standard situations in particular, technologies should allow people to make decisions about appropriate ways to act.

So to recap, the idea that technologies as resources have distinct competencies that can complement people in the performance of everyday practices, and that dimensions of variety include variety (1) in ways of living among older people, (2) variety between the different practices in which technologies as resources could be deployed, and (3) the occurrence of non-standard situations calls for a particular type of insight into use practices.

2.3. Enlisting everyday things as co-ethnographers

In aiming to design resources and looking for dimensions of variety across use practices, we argue that enlisting the perspectives of mundane things on the lives of older people is helpful. Such a perspective can offer novel insights about the unique relationships among the technologies that surround people, and about people’s everyday use practices with such technologies. Particularly when it comes to how humans are entangled with material objects, insights can be discovered only through observation and engagement with the “things” that are there (Ingold, 2012). The conceptual framework of theories of practice – as interpreted and worked out by Shove, Pantzar and Watson (2012) works well here to integrate a thing perspective in the design process, because it does not prioritize the role of

people in everyday life over the role of objects, and allows for a view on technologies as co-performers of practice next to people (Kuijer & Giaccardi, 2015).

A thing perspective, as defined in Giaccardi et al. (2016a), does not just expose and describe forms of practice that are difficult to express in terms of just design or use; it also presents new ways of framing and solving problems collaboratively with objects, which have access to fields, data and trajectories that we as human do not. While technologies cannot be interviewed about their lives, new technologies in the form of sensors, data transfer and memory now allow us to obtain insight into their point of view. As co-ethnographers, things can contribute a different perspective and unique insights (thing-ethnographies, see Giaccardi et al. 2016b) on the everyday use practices of older people that enhance, complicate, and perhaps even challenge those of human observers. Patterns of use can be identified within the data that is streamed through the interaction between people and things and between things and things, which would otherwise go unnoticed (Cila et al., 2015).

The opportunity of enlisting things as co-ethnographers was developed in the context of a study on everyday home practices from the perspective of material objects (Giaccardi et al., 2016a). This study has revealed that objects have the ability to support a variety of different practices according to their movements, temporalities and relationships with other objects. For example, sensor data from a cup, kettle and fridge revealed additional objects that were related to participants' practices of drinking tea, beyond those initially identified by human ethnographers: other dishes, silverware, towels, papers, and pet food, among many other things. These illuminated unexpected and otherwise invisible relationships among objects – that is, the networks or ecosystems inhabited by objects that would have been difficult to elicit through traditional observations and interviews alone. The study also showed that thing-ethnographies might reveal how, in moving through networks of spaces, times and relationships, things can not only “occupy” multiple practices but also be the connector among these practices. Over the course of an ordinary day, for example, cups traveled with participants from their kitchens into dining rooms and bedrooms, and then out of their homes into cars and on to work. These travels brought them into contact with other things – cars, radios, telephones, computers, books, papers, and cigarettes among others – and even into other settings such as kitchens in workplaces. This will assist in the identification of opportunities to where and how the same technologies can be of use across multiple practices and leave space for people to step in when improvisation is required.

The idea of enlisting everyday things as co-ethnographers acknowledges that things have a life beyond their envisioned moments of use, where they relate with humans in relationships other than product-user ones, and where they also horizontally connect to and relate with other things for which they have “uses”: the surface holds the keys, the cane waits at the door, the phone upholds its connection to other phones. Objects are dynamic and emergent entities that contain their own life forces, energies and histories (e.g., Appadurai, 1986). Therefore, a thing perspective moves away from a focus on technologies

in their intended user-centred role and functionality, and helps designers and other stakeholders to see them as *resources* with a range of skills and competences of their own. Furthermore, the study indicated that because technologies do not make judgments about what situations are relevant, memorable or representative and thus what they report to the researchers, their view on daily practices is more likely to reveal variety, “misuse” and *deviations from norms*. As such, objects as co-ethnographers provide practice-specific data on dimensions of variety in everyday crises of routine. We believe these data can provide designers with unique insights on how to design for resourcefulness. Importantly, because resourcefulness is not a property of technologies alone, the approach implies a view on design as an ongoing process rather than as something that ends at market introduction.

2.4. Design as an ongoing process

In designing for resourcefulness, improvisation and adaptation are more than a luxury: they are a necessity (Giaccardi & Fisher, 2008). The challenge of design is not a matter of reducing to the lowest common denominator, but rather of making the emergent an opportunity for better solutions. In established design practices the role of things and prototypes is usually to support people to imagine, discuss and shape future practices at “design time” (Donovan & Gunn, 2012). By extension, design becomes a kind of stabilizing process through which future practice(s) are imagined and realized. In our approach to resourceful ageing instead, we take an orientation according to which we consider every situation at “use time” as a potential design situation (Giaccardi, 2005; Binder et al., 2011; Redström, 2012). This view extends the traditional notion of “design time” to include co-adaptive processes between older people and their technologies that enable older people to act as designers in personally meaningful activities and be resourceful and resilient. This is done by using things (both existing and proposed) as co-ethnographers, and by supporting ways of understanding and designing that take place *after*, *with* and *beyond* the design work at project time (Giaccardi et al. 2016a).

As such, the proposed approach also acknowledges that innovations do not enter a vacuum; they need to be integrated into the existing living arrangements of their users (Scott, Bakker & Quist, 2012). Considering resourcefulness as something that emerges in and forms part of mundane everyday practices – such as cooking, cleaning, getting around, receiving guests and so on – requires sensitivity to the interactions between design proposals, existing technologies, competencies and purposes that make up these practices from an early stage in the design process. Rather than focusing on technology development alone, our approach works with the notion that new competencies can be learned and new purposes and meanings are likely to emerge from interacting with technological innovations (Kuijer, De Jong and Van Eijk, 2013).

The approach therefore assumes to “spend time” with things (familiar and novel) and “work together with” them in order to exorcise and manifest forms of practice in which they partake, which emerge “after design” and do not necessarily adhere to the anticipated forms of practice in the (initial) design process. As argued by Gunn and Donovan (2012), this

engagement requires developing capacities to offer people different ways of understanding what they know and do. These different ways of understanding are inherently performative and transformative. By “listening” to things for an extended period of time, and reflecting on what we usually take for granted, we may begin to articulate unique opportunities for the everyday resourcefulness of older people.

Returning to our objective of shifting ethical decisions about how to live healthily and well to situations of use, the proposed approach aims to do so by focusing on resourceful ageing. This focus implies viewing competences as distributed between people and technologies, developing technologies that remain appropriate in a wide variety of use situations, enlisting things as co-ethnographers and viewing design as an ongoing process. There are, however, other dimensions to the ways in which it intervenes in the ethics of gerontechnology.

3. Intervening in the ethics of gerontechnology

When ethics is about the question of how to act, then the approach we propose is taking up the challenge of developing designs that redistribute ownership of the problem and control over appropriate responses to older people. It acknowledges that skills and meanings change over time – partly in response to new technologies and changing circumstances, and it allows for a wider variety of uses and interpretations than the “foolproof”, single scenario technologies that are currently available in the market for older people.

From an ethical perspective, old age care is a challenging and interesting area, in which, for instance, issues arise around dependency, autonomy, agency and judgements about good care, around the sharing and shifting of responsibilities, around acting and deciding in situations where people may (or may not) have diminishing mental capacities or other trajectories of decline (Moody, 2005). As such, this is an ethically complex area, fraught with dilemmas and characterised by great diversity. It is hard to find a single ethical perspective that is useful or valid all the time and cannot be countered by a different legitimate perspective.

Designing technology to fit into such an ethically complicated situation is obviously difficult. Nevertheless, gerontechnologists deliberately intervene in use practices with their designs in the hope of improving care practices, making care cheaper or more efficient, or enhancing safety or social communication. They are therefore heavily involved in ethics. However, because gerontechnological design tends to be positioned as an unquestionably “good” thing, such issues remain hidden. Neven (2015a,b) shows how in the rhetoric surrounding gerontechnological innovations, ageing is positioned as a looming demographic disaster and thus a big societal problem (e.g., by relating ageing to the rising costs of care). In turn, this rhetoric states that this impending disaster can be resolved with gerontechnological innovation. In this discourse, gerontechnology presents a triple-win scenario in which societal problems are mitigated, older people are better cared for, and technological innovations generate economic revenues. Gerontechnological innovation is thus positioned as the “right” thing and implicitly, the ethical thing to do. This rhetoric provides

gerontechnologists with an ethical legitimization on gerontechnology as a whole. Ethical aspects of the individual designs tend to remain under the radar.

A main intervention in matters of ethics that our approach embodies is therefore its critique on existing practices of technology development for older people. But our position is not just a critique. In the “designerly” tradition (Cross, 2007), we aim to offer a possible, arguably more desirable alternative form of technology development *with* and *for* older people that nurtures a fundamentally different idea about the relations between technology developers and the users of those technologies. In particular, it harbours different ideas about expertise and skills (i.e., where they reside and how they are involved in practice), and it redistributes ideation, design and control between professional design and everyday use practices.

With our approach, we intend to illustrate the complex relationships between objects, competencies and purposes (Donovan & Gunn, 2012; Kjærsgaard & Otto, 2012), and initiate critical inquiries into issues of routine patterns and deviations from norms. In the approach, deviations from norms are explicitly not approached in terms of right or wrong behaviour, but assumed as routine parts of daily life. Older people, for whom such situations can be argued to be particularly common, are considered as those best capable of making judgments about the personal and social life they would like to live. What it is to live healthily and well is something that varies greatly between people, for the same people in varying situations, and changes over time.

As a consequence, rather than being intended to affect and assess change (Horvath, 2008), or to “change existing situations to preferred ones” (Simon, 1996, p. 111), our approach suggests to turn the role of design on its head. By explicitly engaging with the changes that accompany the human ageing process, the designs may even have the intention to *absorb* change. In other instances they may be designed to facilitate, celebrate or highlight change, but in any case there is a fundamental acknowledgement that gerontechnologies enter a world that is already changing, and continuously reinventing itself, through them, with them, but also in spite of them.

Finally, the approach itself calls up ethical issues. Focusing on resourcefulness is in itself a major ethical decision. One complicating factor is the fact that openness isn’t always better. In some designs for older people (e.g. telephones for people with mild forms of dementia), some constraints in the design actually enable people to make use of the technology. Moreover, using things as co-ethnographers means that we are delegating part of our research work to things. What are the implications of equipping things with sensors and collecting their view on the lives of the people they live with? For example, when do technologies with their sensors capture episodes or insights on older people’s lives that they did not notice, remember or find significant, and when are these aspects instead deliberately not mentioned because they did not want to share them with the researchers (whether human or non-human)? How to give participants in the study control over what data is collected and shared and how it is interpreted and used? As we progress in developing and applying the approach, these are questions we will engage with.

4. Conclusions

By problematizing existing approaches to the design of gerontechnology, this paper proposes an approach to design for resourceful ageing. By reformulating the question of “how to deal with the problem of ageing” into a question of “how to celebrate getting older as an achievement”, the approach sees older people not just as “old old” but as a broader category of people that are differently skilled, but certainly resourceful, and very much capable of creatively finding solutions to the wide variety of challenges they encounter as they age.

With our approach, we critique the unreflective materialization of ethical decisions into “foolproof” technologies and propose a design approach that focuses on re-delegating such ethical decisions to use situations. To design technologies as resources that offer complementary competences that are appropriate in a variety of use practices (and can therefore help older people adapt and improvise in everyday crises of routine), this positioning requires rich insight in the ways in which technologies function and can function as resources in varied and changing everyday routines. To gain holistic insight into these opportunities, the approach enlists things, both existing and proposed, as co-ethnographers. The impact of this approach can be significant, as it has the potential to empower a larger, growing group of ageing population and support them to negotiate their changing bodily and mental skills, while remaining in control of their own lives, and make their own decisions on how to age well. It also introduces new ways of using technology for design and innovation that enable to avoid the waste of investment and lack of adoption of existing products and services for ageing people conceived for single-use scenarios and single functionalities and possibly generate ideas and innovations for resourceful living that can be rewarding and fulfilling for all ages.

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SECTION 24

**REFRAMING THE PARADOX – EXAMINING THE
INTERSECTIONS BETWEEN EVIDENCE-BASED DESIGN AND
DESIGN FOR THE PUBLIC SECTOR**

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Introduction: Reframing the Paradox – Evidence-based Design and Design for the Public Sector

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Today we face complex challenges: the European migrant crisis, delivering health and social care for an aging population, dealing with the social impacts of growing economic inequality, and the transition to sustainable wellbeing societies. Increasingly, designers are working to address such complex challenges and to deliver improved societal outcomes. The call for designers to reject consumer culture and to produce socially useful and meaningful designs can be traced to the Socially Responsible Design movement in the late 1960's and 1970's. More recently, the debate concerning the relationship between design and society has called for designers to take more collaborative and participatory approach to designing for social services and interventions. Within the last decade design has started to be used at government levels to create innovation within the policymaking process itself.

However, a paradox is emerging. On the one hand, governments are realising that they cannot address new complex challenges in the way they approached them in the past and so policymakers are turning to design for new strategies and techniques. On the other hand, policymaking is increasingly being influenced by the positivist view of research that underpins traditional evidence-based practice models. This session brings together new research that examines the tension between the potential of design approaches to address governments' most urgent challenges and the assumptions of evidence-based practice and designerly ways of knowing.

The papers can be placed in two groups according to questions they share in common. The first group of papers relates to the question: Are designers ethically and critically prepared for intervening in social and political contexts? The papers in this group focus in different ways on the encounter between designerly ways of knowing and cultures of decision-making in central government.

Kimbell discusses an organisational ethnography of a public innovation lab in central government in UK. The study reports on the encounter between designing and policymaking



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using a conceptual framework for investigating interdisciplinarity from the social studies of science and technology. The study shows that design can be used in policymaking but that design is challenged by policymaking in turn. Kimbell describes two ways through which design thinking engages with policymaking. First as a service in providing new approaches, a partner in facilitating projects, and a challenger that questions assumptions. Second, through logics of practice that influence policymakers' accountability to stakeholders, that involve innovative forms of collective inquiry, and that re-order issues and perspectives. Kimbell maintains that when design challenges policymaking to be done differently, it also brings new responsibilities upon itself due to the political and ethical implications of context and work.

Bailey and Lloyd report on an interview based study with senior civil servants concerning the uses of design thinking in strategic-level decision making in the central government in the UK. The study investigates what happens when design thinking confronts and challenges the policymaking and institutional culture of central government. Bailey and Lloyd present a reflective and critical account about what it is that design problematises when it is introduced into the institution of government. On one level design thinking is seen to simply offer new tools to policymaking, however Bailey and Lloyd's study describes insights that indicate a more fundamental confrontation between 'designerly ways of knowing' and 'policymaking ways of knowing'. They identify instances where design thinking in a policymaking fundamentally challenge existing notions of knowledge, ways of performing intelligence, ideas of skilled practice, the aesthetics of institutions, and the nature of political relationships and timescales. Bailey and Lloyd highlight that design thinking is not a value free set of tools, and that design for policy is situated in an unavoidably political context.

Umney, Earl and Lloyd make a new link between design and government by positioning parliamentary debate as the design of society. Umney et al.'s view is situated within Kees Dorst's frame creation theory that holds the view that designers' progress their projects by creating shifts in perspective or 'frame'. According to this approach, one way that these shifts in perspective are revealed is through the use of precedent examples in the design process. Through their analysis of a parliamentary debate concerning the development of a controversial high-speed railway line in the UK, Umney et al. show that the interlocutors sometimes use the same precedent to support different claims: for example as a reframing device to generate shifts in perspective, or to evoke aesthetic qualities, or to consolidate identity, or as common ground from which to overcome conflicting positions. Umney et al.'s study generalises design theory to the new domain of parliamentary debate and shows that the status of a particular precedent example as evidence is connected to the particular argumentative situation within which it is employed.

The second group of papers relates to the question: How are co-design and design research approaches used in designing and evaluating public services and infrastructures? This group of papers focuses in different ways on the methods and techniques of designing in the public sector. Common themes are the perceived lack legitimacy of design knowledge in within the

policy process, and the use of mixed-methods approaches to generating evidence and knowledge.

O’Rafferty, DeEyto and Lewis report on a design research project that explores how government interventions and services in Ireland can create better outcomes for businesses and communities in terms of sustainable behaviour and practices. The author’s take the perspective that designers provide distinctive methods and practices that influence the construction of knowledge in policymaking contexts in new ways. They argue that current policy interventions focus on individual actors and so make the assumption that there is a direct correlation between individual rational choice and pro-environmental behaviour. In contrast, O’Rafferty et al. draw on Social Practice Theory and design research approaches such as design ethnography, user-journey mapping and co-design workshops to generate insights and service prototypes that are informed by evidence of actual rather than assumed behaviours. However, they found that applying co-design approaches in policy and public service contexts also faces challenges in gaining recognition as a legitimate approach that produces reliable evidence that aligns with the larger policymaking process. The authors reflect that applying design in policymaking is no easy task since government is a politically contested context and design attitudes and competencies are not typically found within public sector organisations.

Teal and French report on two examples of the use of design methods to engage with the public in informing changes to policy and in designing social services. The focus of these examples is on involving everyday people in policymaking by utilising different types of artefacts and strategies to support meaningful dialogue between policy makers and the public concerning health and social care services in Scotland. Teal and French take an asset based perspective that aims to build social capital within the community by supporting individuals utilise their capacities as active agents to obtain particular health and wellbeing outcomes. Teal and French describe two examples of ‘Pop-up’ installations designed to create engaging experiences and to shift the focus of public consultation from passive participation to active dialogue. Teal and French maintain that the ‘Pop-up’ approach provides an effective means to include the perspectives of a diverse range of participants and to generate and capture conversations with greater detail and insight. Consequently they argue that the designed engagement approach shows the value of qualitative research methods and their potential for use in mixed-methods evaluation research and social innovation.

Manohar, Smith and Calvo address the need for new approaches to capturing and assessing the value of engagement between public sector agents and their community members. Traditionally, evaluation has been conducted using methods such as surveys and focus groups, however, Manohar et al. propose that evaluation can be conducted collaboratively while embedded within co-creation approaches to community engagement and consultation. They describe an evaluation process and framework they developed for projects to assess public services and interventions in Lancashire and the Highlands and Islands of Scotland. Manohar et al.’s ‘Creative Evaluation’ approach aims to be creative,

engaging, and deployed unobtrusively within their consultation tools. Their approach generates a portfolio of qualitative and quantitative evidence that assess the three themes of difference in process, difference in result, and difference in learning. Furthermore they combine evaluation with principles such as accessibility, participation, and contextualisation.

Gagnon and Côté contribute a critical account of design research for public design in Quebec. They develop a conceptual framework that identifies three ways that design thinking can generate innovation: first by changing the design process, second by transforming human experiences, and third by playing a strategic role in organisations. They analyse three design research projects that address social innovation issues concerning the implantation of public infrastructures in urban and regional landscapes. From their analysis, Gagnon and Côté maintain that there is a gap in the design process between the design research stages and implementation stages in public design projects in Quebec, and that different models of design practice are needed to operate successfully in public contexts.

Lastly, Sustar and Feast argue that evidence-based design is a concept defined by a hierarchical model of evidence that aims to standardise types of evidence corresponding to their strength. According to the model, evidence varies in strength to the extent that it can provide objectively good reasons for an explanatory relationship between the evidence and the truth of a hypothesis. Sustar and Feast criticise this position and claim that models of evidence based design that focus on evidence strength do not capture other essential aspects of design activity as it is currently practiced in the public sector. Sustar and Feast draw on existing knowledge in design and epistemology to present a model of an evidence-knowledge system that incorporates evidence strength and adds two further dimensions: relevance and confidence. Sustar and Feast test the model through interactive reflection with a case study of a designing for services project for the immigration services in the Finnish public sector. Their analysis of the case study suggests that essential aspects of designerly work are aimed at generating knowledge about the relevance of the proposed design to its context and to supporting the stakeholders' confidence that the design process will deliver the solution they actually need. This pluralist model of an evidence-knowledge system for design reveals that decision making in contemporary service design projects, like the one presented in the case study, utilise case based reasoning approaches and triangulation of different evidence types to converge on a final solution, rather than using objective evidence to determine true empirical and causal explanations. Consequently, they maintain that, on one hand, evidence-based design should aim to capture more functions of evidence in designerly work, and on the other hand, designing for services and public innovation should develop methods to better address the dimension of evidence strength.

Open Practices: lessons from co-design of public services for behaviour change

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Abstract: This paper explores what the distinctive value of design may be in a policy context. The paper broadly supports the contention by Smith and Otto (2014) that design offers a “distinct way of knowing that incorporates both analysing and doing in the process of constructing knowledge”. The paper will also outline potential limitations of the direct translating of design practice and methods into a policy context. To achieve this, the paper uses insights gained from an on-going design research project, Open Practices, which aims to co-design services and policy interventions to enable sustainable behaviour change. In this case, co-design, as a method and context for policy design, interweaves alternative ideas and perspectives (e.g. interdisciplinary knowledge, desirable visions of future behaviours), new policy practices (e.g. co-creation, policy labs, practical experiments, ethnographic study) and new social relations (e.g. new networks and actors).

Keywords: co-design; policy; public services; behaviour change

Introduction

The last few decades has seen design practice and research move from a singular focus on the methodological and technical considerations of artefacts to include the psychological and sociological considerations of people, publics, policies and the relationships between these. More recently a small but growing number of designers and design researchers are working with and within the public sector and at different levels of government in order to assist in the development of policy and public services.

On the one hand we are seeing direct transplanting of contemporary design practices such as user-centred design and design ethnography into a public sector context to suit the interests of governments e.g. cost saving and austerity, weak service models or policy failures. On the other hand there also appears to be a desire to use design as a pragmatic yet



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speculative approach to policy making to counterpoint the existing normative, ideological or utopian approaches.

Broadly speaking, designers working on policy and public services have been aligning themselves with participatory policy methods that have become more prevalent in recent years (Bason, 2014, 2010). This is a break from the traditional top-down approach to policy that is guided by political expediency and technocratic methods. It has been argued by deLeon & deLeon (2002) that an approach to policy implementation could involve a greater emphasis on citizen participation and a wider democratic ethos. This would involve a shift in the policy process towards co-designing services with citizens and stakeholders, design activism and an increased role for designers in policy formulation.

A number of tensions and questions emerge from this. For example, to what extent is design practice constructed, commissioned and bounded by policy and politics?; how do designers broker between the government and the public at various stages of policy-making and how effective and meaningful are these discourses?; how is representation and participation articulated? How does design for policy use and create meaningful evidence?; what value and values does design bring to the policy process in direct relation to other disciplines and domain expertise?

In relation to this last question, Smith and Otto (2014) have contended that design, in particular design anthropology, offers a “distinct way of knowing that incorporates both analysing and doing in the process of constructing knowledge”. This has important implications for how designers use and create evidence to support the development of policy and the design of public services. There are significant differences between the nature of evidence for policy and for services and it is important to not assume one is directly applicable to the other.

Relationship between design and policy design

In order to begin setting the context for the rest of the paper, it is important to outline how design and policy making interweave.

The design community is relatively new to the debate on policy design. The study of policy design has been ongoing for the last three or four decades (Bobrow, 2006; Dryzek, 1983; May, 2006, 1991; Parsons, 1995). Dryzek (1983) defined policy design as the “conscious invention, development, and application of patterns of action in problem resolution”. Policy design has been defined as a process by which a number of policy actors seek to improve “policy making and policy outcomes through the accurate anticipation of the consequences of government actions and the articulation of specific courses of action to be followed” (Howlett and Lejano, 2013).

Howlett (2011) also suggested that policy design could be considered as the ideal configuration of “policy elements” that are directed at achieving specific outcomes within a governance context and that “meta-policy designing” is the process by which these ideal types are identified and refined.

These definitions suggest that policy design is problem oriented and the intention is to address a problem through the action of a problem owner or community of interest. The definitions may seem intuitive or axiomatic to designers and design researchers. For example, an enduring definition of design is that it is best understood as the human endeavour of converting actual situations into preferred situations (Simon, 1969).

To further illustrate the parallels, Richard Buchanan (1990) argued that design is an integrative, supple discipline that is “amenable to radically different interpretations in philosophy as well as in practice”. Buchanan went on to suggest that design affects contemporary life in at least four areas. These include the design of symbolic and visual communication, artefact and material objects, activities and organised services (strategic planning) as well as complex systems or environments for living, working, playing and learning (systemic integration). Design for policy and public services can be related to each of these four areas, either individually or collectively.

There are two other common themes in the literature on policy design. Firstly, policy design is a multi-level and multi-actor process that is socio-technical in nature. Secondly, policy design is a knowledge intensive activity in that it requires solid knowledge on what has happened previously, what interventions are likely to work and new methods of sense-making so that future desired states can at least be articulated.

Linder and Peters argued that a “design orientation to analysis can illuminate the variety of means implicit in policy alternatives, questioning the choice of instruments and their aptness in particular contexts...More important, such an orientation can be a counterweight to the design biases implicit in other approaches and potentially redefine the fashioning of policy proposals” (Linder and Peters, 1990).

A specific policy dilemma: sustainable behaviour change

Almost all government policies and public services aspire to change or shape the behaviour of individuals, organisations and businesses in order to meet policy or societal objectives. In an idealised scenario this action by government is in response to a clear market or system failure and is applied in areas of perceived individual and collective good, such as smoking cessation or household energy consumption.

In the context of climate change and the circular economy, the policy narratives around behaviour change have become increasingly explicit. One of the key drivers of this is a growing understanding that many current regulatory and non-regulatory policy interventions for sustainable behaviour change have been ineffective, or worse, counter-productive. In this instance, “sustainable behaviour change” refers to the behavioural changes that orientate a person’s actions and decisions towards sustainable development goals.

This counter-productivity of existing policies and services can be seen most clearly in the unintended rebound effects that are brought about by a legislative and service framework that emphasises technological efficiency improvements that are decontextualised from the

social context. For example, many early technology oriented solutions for sustainability over-estimated the environmental motivations of people while under-estimating other factors such as compatibility with lifestyles, aesthetics and socio-economic context (Hertwich, 2005).

Some approaches to designing interventions for sustainable behaviour change have sought to develop passive and techno-mediated systems that form themselves around user behaviour and social practices. For example, the use of intelligent technologies, functionality matching or more recently through the “internet of things” (Rodriguez and Boks, 2005; Wever et al., 2008). Other approaches have sought to enable, constrain or motivate behaviour through the use of physical and cognitive interventions, including design scripts, affordances, or persuasive technology (Fogg, 2003; Heijs, 2006; Jelsma and Knot, 2002).

While these interventions typically focus on individual interactions and changes in behaviour through new forms of consumption there is also the need to develop policies and public services that use behavioural insights in their design, delivery and evaluation. Behavioural change policies and services informed by behavioural insights emphasise the unconscious, automatic, social and emotionally oriented drivers of human behaviour and the socio-technical context of organisational behaviour. Additionally, sustainable behaviour change is not the domain of any single government department or organisation as it is a multi-level challenge that has a socio-technical dimension.

Proponents of behavioural change policies and related interventions typically argue that the transformation in behaviour can be pursued through traditional interventions such as incentives, education, and prohibition, but these require augmentation with human centred and more emotionally-oriented interventions.

Problems with the design of existing services and interventions

Some of the early theoretical frameworks that informed policy interventions assumed a direct correlation or linear progression between knowledge on environmental issues which would lead to environmental awareness and concern (attitude) and that this in turn would lead to pro-environmental behaviour.

This rationalist model of pro-environmental behaviour was built on the assumption that educating people about environmental issues would bring about pro-environmental behaviour (i.e. the ‘deficit’ and ‘regulation’ models). Recent empirical studies have shown that “anomalous behaviour” such as status quo bias, endowment effect, loss aversion, framing effects, anchoring and preference reversals can render such interventions ineffective.

In the behaviour change literature there is a dominance of behaviour change models that focus on cognitive processes and decision-making. Southerton et al (2011) also conducted a review of international behavioural change campaigns and suggested that there is a ‘disproportionate focus’ on the individual within these campaigns. Additionally, the social context is treated as hermetic and therefore behaviours are assumed to not change or

interact with other elements of social life (Shove and Pantzar, 2005). Southerton (2011) suggested that behaviour change campaigns should go beyond the individual to include mechanisms that intervene in the social and material contexts.

This “beyond the individual” perspective has also become a dominant frame in the sustainable behaviour change literature. One of the increasingly popular perspectives in this regard is social practice theory that argues that the determinants of human behaviour need to be understood as a dynamic and interconnected arrangement of ‘elements’ that include physical and mental activities, norms, meanings, technology use and knowledge. The social practice perspective tends to be more focussed on the everyday lives of people as opposed to specific aspects of behaviour (Reckwitz, 2002).

Social Practice Theory has been applied to understanding sustainable behaviours, in particular in the fields of energy use, transport and waste (Chatterton, 2011). It is seen to be useful in this context as it acknowledges the need to consider both the individual and the context they live within. A key premise of Social Practice Theory in this context is that consumption occurs through everyday practices (Warde, 2005) and that many of our resources are consumed for the purpose of maintaining standards of comfort, cleanliness and convenience in our everyday life (Shove et al., 2012).

Similarly, many interventions to support sustainable behaviour in business have been based on a linear understanding of innovation that has been contested in the literature. For example, policy interventions often address specific market failures such as externalities, imperfect and asymmetric information but undervalue the interaction between actors and institutions within the wider innovation system. The co-evolutionary view of socio-technical systems highlights system failures such as lock-in and path dependency failures, hard and weak network ties, capability and learning and infrastructure that make interventions ineffective.

These factors are of interest to policy makers because some interventions, such as nudge type interventions, may change behaviour in the short term but not the underlying drivers of behaviour such as habits, attitudes or motivations. For example, changing the choice architecture or introducing a tax may only change behaviours while the tax is in force. It may be the case that the behaviour will revert once the charge or tax is removed. It may also be the case that the charge or tax may be high and the response may simply be the displacement of behaviour or the circumvention of the charge.

Open Practices: a co-design approach

With this context in mind, it would be useful to look at an existing case where some of these insights are being applied in a policy context.

Open Practices is a design research project that is exploring how government interventions and services in Ireland can create better outcomes for businesses and communities in terms of sustainable behaviour and practices. Traditionally, the Irish Government have attempted to create the conditions for Sustainable Behaviour Change through semi-public

infrastructure, public information campaigns and supply-side interventions (e.g. business support programmes, demonstration projects). There is a growing understanding that many current policy interventions for behaviour change in business and households can be ineffective, or worse, counter-productive.

The research is integrating emerging knowledge on sustainable behaviour and practices with empirical insights from existing Environmental Protection Agency (EPA) interventions with businesses and communities. The project has been developing new insights from in-depth research with businesses, policy makers and experts in intermediary organisations as well as co-design workshops with public sector organisations across Ireland. The research applies design research methods such as ethnography, user journey mapping, service safaris and contextual interviews.

While much of the work on sustainable behaviour change is focussed on individual behaviour (e.g. energy use in the home, sustainable consumption etc.), Open Practices is currently focussed on services and policy interventions aimed at businesses. This is an under-researched but important context because businesses participate in and impact on the socio-technical conditions that drive long-standing behaviours and habits among the wider public.

Problem space research

The first stage of the project was focussed on mapping the landscape of interventions and services for businesses and defining the problem space within which the research should be conducted. This involved a series of interviews with policy makers and experts from intermediary organisations as well as desk based research.

Based on these insights, 199 different environmental policy interventions and services in Ireland were identified and then classified by the author. This classification sought to develop a comparative framework of key services, interventions, mechanisms, target sectors, beneficiaries and lead organisations.

The interventions reviewed ranged from national strategies, regulatory instruments, bans, obligations, voluntary agreements, information tools (Toolkit, Leaflets, Website), fiscal instruments (fines, charges) and grants (Figure 1).

Another finding was that there are a wide number of organisations delivering services and interventions (Figure 2). Each of these organisations shares common policy outcomes but each have niche and specific policy interests e.g. competing policy rationales, funding cycles, immediate business interests and the interests of the wider public.



Figure 1: Classification of existing services and interventions by type and number

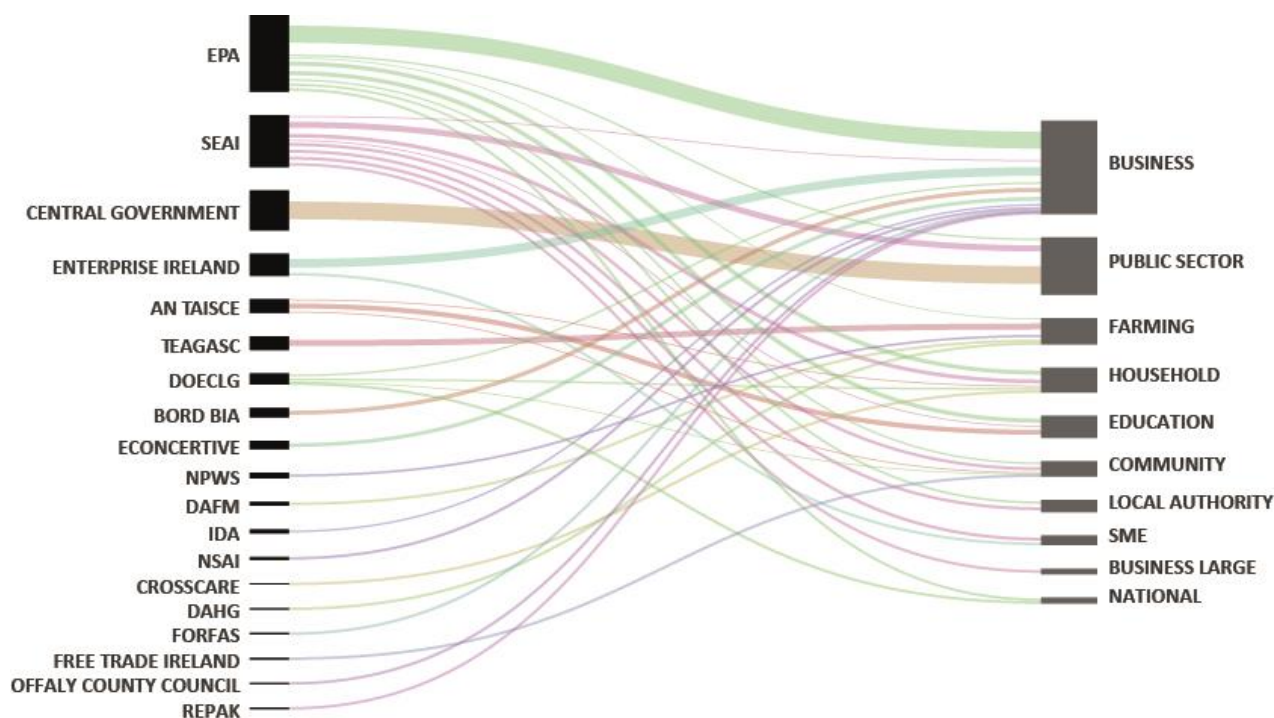


Figure 2: Intermediary organisations and their related beneficiaries (by sector)

An early stage insight was that many of the existing interventions and services are not radically different from each other in terms of design and delivery. This suggests that there

are a number of opportunities for collaboration and alignment across Irish government programmes.

The specific economic, cultural, regulatory, technological and innovation system of Ireland needs to be considered but a refinement of existing interventions could occur in the short to medium term and new, more radical interventions can occur in the medium to long term. The aim should be to strengthen existing actions to support businesses, clarify the level of opportunity to deliver the newly designed interventions and how practically these might be implemented.

Following the mapping of the national landscape the research team focussed on analysing the system of services and interventions being delivered by the EPA itself. Figure 3 highlights a comparatively complex service delivery system for one organisation.

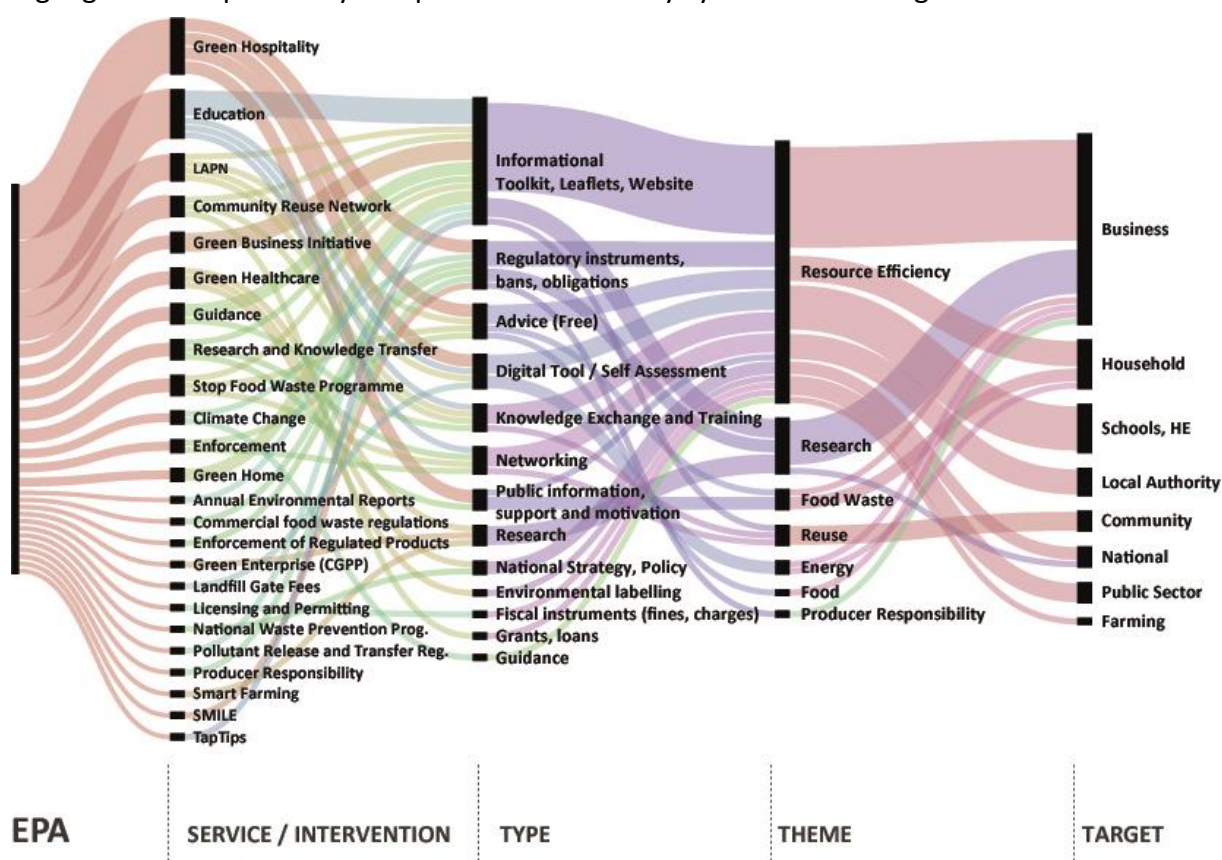


Figure 3: Typology of EPA interventions highlighting the services/intervention, type, theme and target

Design ethnography within businesses

In order to build on the insights from this first stage of the research, the Open Practices project began to focus in on two key business support services offered by the EPA and conducted in-depth research with businesses. The research applied design research methods such as ethnography, user journey mapping, service safaris and contextual interviews. The aim of this phase of research was to provide insights into businesses, and specifically staff with environmental responsibilities, going about their daily lives in work as well as interviewing them about the business behaviours associated with resource efficiency and

their experiences of interacting with the public sector. Importantly, the research reflected a variety of circumstances, sectors and regions and sought to go beyond the existing understanding of business behaviour.

The research team was curious to understand how businesses interact with the public sector and the extent to which they are affected by competing signals, and whether existing policy and services help or hinder them in making decisions around resource efficiency and sustainability. In addition to the design ethnography, the Open Practices project also undertook service safaris with intermediary organisations conducting resource efficiency assessments as part of a business support service (Figure 4).

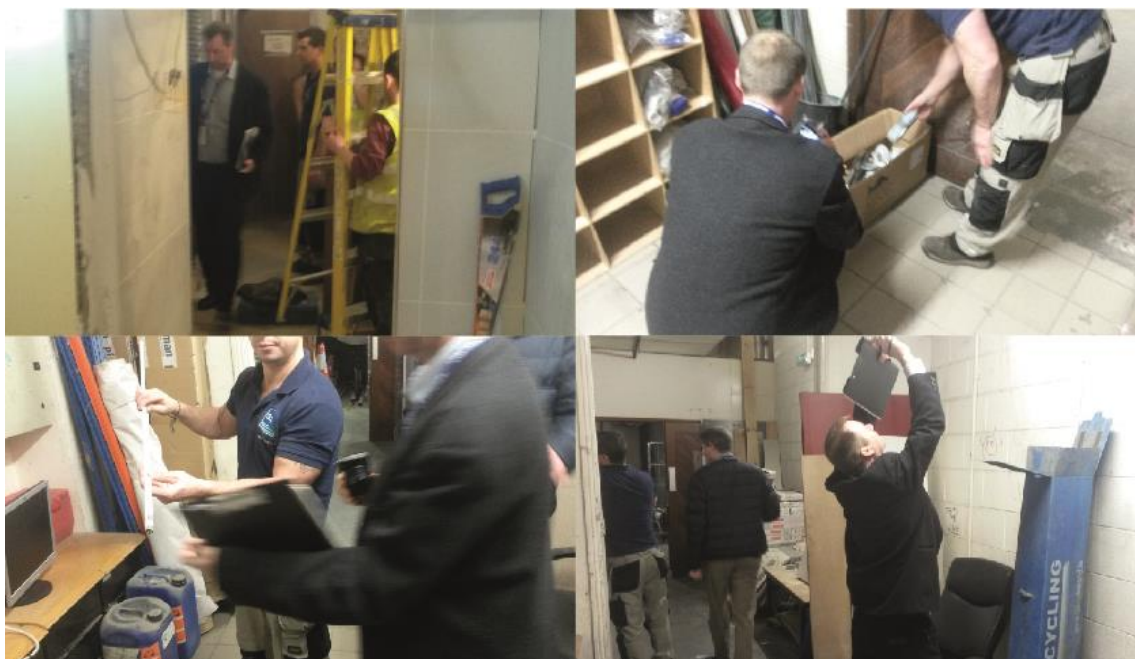


Figure 4: Sample images from the service safari with intermediary organisations

A small selection of the insights gained through the research with businesses include:

- While environmental practices are becoming normalised, the staff with environmental roles tend to be “double-jobbing” and can have other roles (e.g. technical manager, production manager). The current systems of compliance tend to be administratively complex and the individuals are often snowed under with paper work.
- Businesses in Ireland tend to be relational and there is a perception that personalised support was important to support longer term behaviour change as opposed to a broader international trend towards “digital-first” services. This has obvious implications for how services are delivered, what resources are allocated to these services and how opportunities for alignment between digital and non-digital services can be achieved.
- There is an expectation that support services should be available but that the current offerings can be difficult to navigate or differentiate between

providers. There is a relatively complex network of providers of support and each of these is operating to the best of their ability but with limited reach and resources.

- There is some resistance to moving past the “low hanging fruit” of resource efficiency e.g. waste management. This may be related to the weak links between resource efficiency and wider innovation activities in businesses.
- Positive impacts from existing services and interventions (e.g. input additionality) can go unmeasured and misattributed because the teams do not have resources to evaluate over the most appropriate timeframes.

User journey maps

Based on the above research insights a number of user journey maps were created based on interviews with businesses across Ireland. These journey maps highlight the stages each company went through e.g. the point they considered resource efficiency, accessed support services, developed projects and in-company initiatives and what happened after they exited the services.

The user journey maps were then synthesised into a single meta-journey map that presents the combined journey map and touchpoints for two key EPA services (Figure 5). Not all companies interviewed went through every stage of the services. There was a need to explore where the friction points in user journey were and how the design of some stages of the service prevented companies from progressing. To make the user journey manageable the journey maps were designed around four key stages 1) Trigger to action 2) Formalisation of possible actions 3) Accessing and using service 4) After service.

a. Trigger to action

Each company outlined the various triggers for action on exploring the value of resource efficiency or sustainability. These triggers were clustered into external, internal or a combination of both. The most frequently cited external triggers to considering resource efficiency were regulations and licensing; information provided by intermediary organisations, trade bodies and sector organisations. The most commonly cited internal triggers were introduction of new management, capital investment, the creation of new roles (e.g. EH&S) or attendance at a specific event (e.g. Green Business Events) resulting in new information relating to possible benefits of resource efficiency. There were also a number of ad-hoc triggers. These included actions being undertaken without any explicit intention to be resource efficient i.e. Waste management, lean manufacturing.

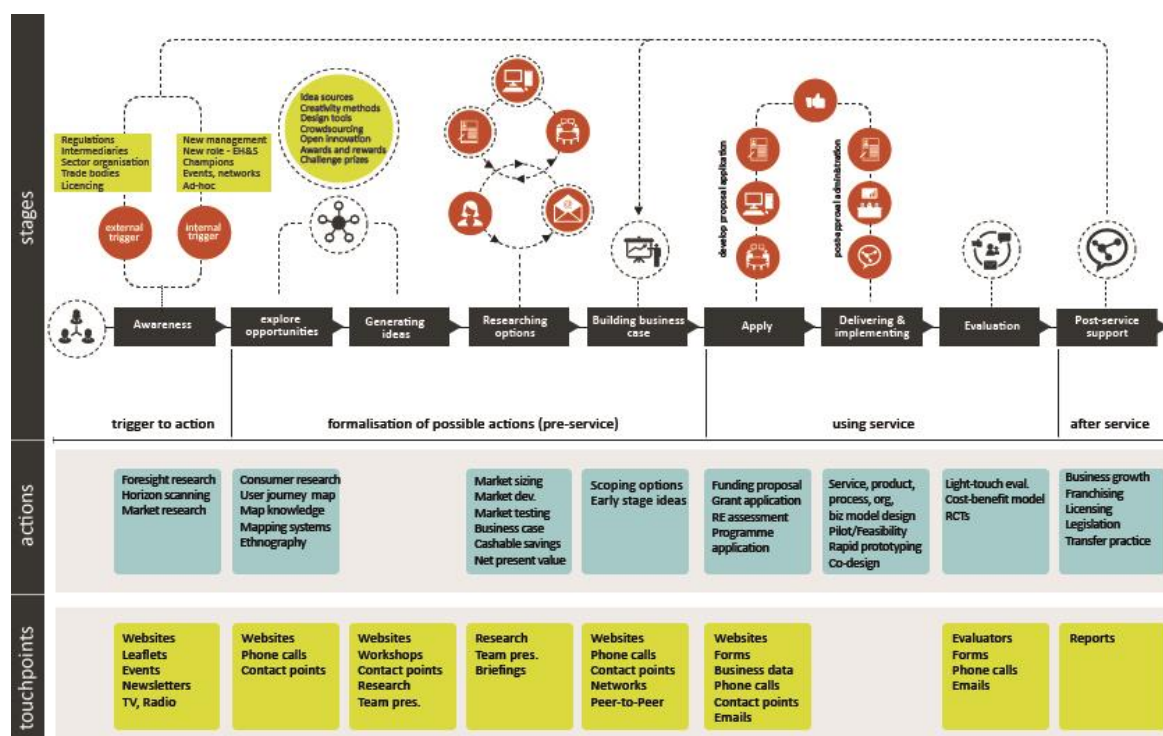


Figure 5: Overview of meta-journey map

b. Formalisation of possible actions

Following the initial trigger there was a process of formalisation of ideas and identification of opportunities for resource efficiency. What was clear from the interviews was that while there were common characteristics, the specific process was unique to each company.

- **Explore opportunities:** This is generally an ad-hoc phase of exploring the opportunities of resource efficiency. In many cases this was the first step towards building a business case. It was often the role of an individual e.g. the person with an environmental management role. At this stage there was typically a combination of web searches, informal dialogue with experts, report reading and viewing webinars.
- **Generating ideas:** Once possible opportunities were identified there was a process of generating ideas around these opportunities. This would often be focussing on specific resource efficiency hot spots e.g. water use, energy consumption, waste. There was often a lack of readily available data to support the process.
- **Researching options:** Once ideas had been generated there was a further stage of research into the specific characteristics of the opportunity. This would often require additional research, contacting suppliers for data, preliminary tests on existing processes and equipment.
- **Building the business case:** These previous stages typically fed into some form of business case development. While many of the companies used board and team meetings as the space within which these business cases were

presented, discussed and deliberated on there was no common or consistent form to the business case. In many cases it was a verbal or Powerpoint presentation and in some cases there were more formal documents presented.

In some cases the process was bottom up (environmental manager presenting to senior management) but in other cases it was the reverse i.e. a top down approach. In the cases where the initiative did not come from top management there was a potential problem in the capacity to successfully build the business case. This could be due to a lack of skills and knowledge on how to make the business case or due to a restricted awareness of wider planning issues occurring across the company.

c. Accessing and using service

Once the business case had been met and agreed upon the process of accessing support is initiated. This is a relatively complex process as it occurred through many stages, channels and is often a non-linear process. In the case of the two key services, there is a series of stages required to develop an application or project proposal. This involved a number of touchpoints (e.g. websites, emails, phone calls, meetings). There can be a high degree of uncertainty in the process, especially in the case of first-time applicants.

Once the company applied there was a period of waiting for approval and this created additional uncertainty. Once the project had been approved there are a number of additional processes and steps required in order to build the infrastructure and resources required to deliver the project (e.g. teams, project management materials, additional finance, match funding, consultants).

For some companies the time-lag between idea development and project approval meant that the commercial circumstances and context have changed. This sometimes meant a restructuring of the original proposal. Once the project was finalised, formal project completion reports that were submitted.

d. After-Service

Once a business left the services there was often no direct follow up, continued dialogue or longer term evaluation. The sense that many companies had was that service relationship is completed once the project has been completed. This was generally the case because of resource issues on behalf of the service providers.

Co-design workshops

Following the development of these journey maps and personas, co-design workshops were held with key and front-line staff from national intermediary organisations involved in delivering services related to sustainable business practices (Figure 6). The key aim of these workshops was to interrogate the existing research and to allow the service providers 'see the person' in the business. The aim was to place the business experience at the centre of future service design, delivery and evaluation.



Figure 6: One of the co-design workshops with intermediary organisations

Service prototypes

At these workshops the staff were involved in co-designing preliminary prototypes of new possible services. The staff applied some basic service design tools such as personas and stakeholder maps (Figure 7). They then used simplified service blueprints in order to develop initial service prototypes. These initial service prototypes have been further developed through visual story boarding and wire-framing.

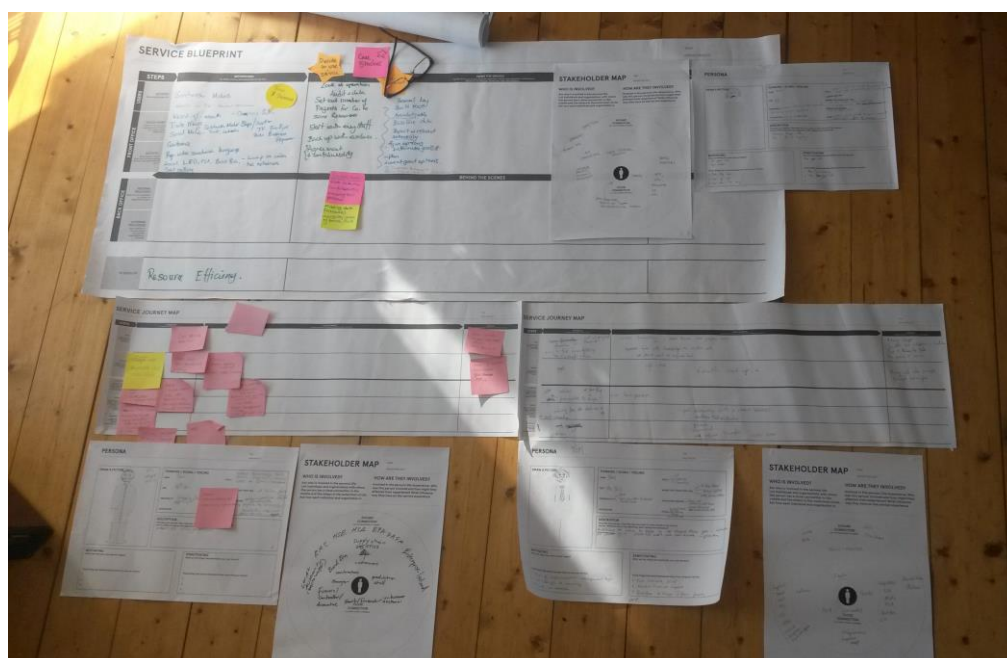


Figure 7: Sample of the initial prototype service blueprints developed by the intermediary organisations

2nd round of co-design workshops

The next stage of the process is to run a series of co-design workshops with the businesses that were involved in the initial ethnographic research. This work will be reported on in mid 2016.

Dilemmas of co-design

While this process is developing new insights and prototypes of new services a number of reflective observations have been made over the course of the research. Some of these reflections have been discussed previously by O'Rafferty et al (2015) but are expanded on below.

Evidence

One of the obvious challenges within this form of co-design process is that the evidence for action that is generated is the antithesis of the ideal evidence base required for developing a policy and, albeit to a lesser degree, services. The co-design research has needed to be supported by a great deal of desk-based research to ensure that the context and power structures are properly understood.

Legitimacy and authorisation

Legitimacy in the most practical sense refers to how legitimate the co-design activity is perceived to be. Factors that impact on this perceived legitimacy include the depth and breadth of involvement from stakeholders and beneficiaries. Coupled with this is the challenge of gaining political legitimacy. While the co-design activity provides significant opportunities in terms of situating innovation in a safe mediating space, if it does not receive management buy-in it will struggle to find legitimacy.

Embeddedness

Embeddedness refers to how embedded the co-design activity is within the policy innovation system. The degree of embeddedness is in general terms how connected and aligned the co-design activity is with the wider processes or actors in the policy innovation system. This principle can be viewed from the perspective of "structural embeddedness" or "relational embeddedness" which emphasise the social context of innovation.

Binding

A key dilemma with co-design is the issue of binding or ties between the various actors within the co-design process. Typically the ties are seen to be weak or strong and the nature of these can impact on the effectiveness of the co-design activity. For example, frequent and intense interaction between many actors in a dense network structure can lead to rapid redundancy of knowledge but significant innovation opportunities. On the other hand, strong ties formed through well-established relationships within a highly localised context can lead to informal lock-in and reinforcement of existing practices.

Coherence

Coherence refers to how coherent the co-design activity is in relation to the wider policy and social context. Supply and demand-side coherence can be a useful way to frame this dilemma. Supply-side coherence relates to the level of alignment between the co-design activity and existing policies and policy processes and the recognition of this alignment among policy makers and other actors in the co-design activity. Demand-side coherence relates to the recognition of this alignment among the wider public or beneficiaries of the outputs of the co-design activity.

Conclusion and discussion

The general aim of this paper was to initiate a discourse on co-design for policy and public services, with a particular focus on sustainable behaviour change. The paper suggested that the ineffectiveness of existing policy interventions and services could in part be explained by the behavioural assumptions that underpin the design of existing interventions. The paper then suggested that policy-making needs to consider ethnographically informed insights and co-design methods.

These ethnographically informed insights and co-design methods can provide a richer evidence base that augments existing forms of evidence and evidence gathering. This is particularly true for the evidence used to inform the design of services and policy interventions related to sustainable behaviour change. A key value of this type of evidence is that it allows for the development of services and policy interventions based on real rather than assumed behaviours. The co-design process can also allow for a richer evidence base in that it allows for a deliberative process between different stakeholders over and above what would have occurred normally in the Irish context.

It could be argued that design may temper the instrumental rationality of policymaking that is dominated by scientific and technical knowledge with an approach that is human centered, action oriented, reflexive and communicative. One of the overarching dilemmas is how designers working in the policy context can shift from solely articulating, making desirable and reinforcing existing policy perspectives and power structures towards seeking to articulate dialogically the values and interests of the public within policymaking.

A key reflection from this paper is that situating new co-design practices within the multitude of tasks expected of government is no easy task. This challenge is compounded by the fact that policy design is contingent and contested, not least in respect of the roles played by citizens and non-governmental intermediaries. Another reflection is that the competencies and mind-sets required for co-design are not typically found within the public sector organisations that are responsible for environmental policy in Ireland. There are a number of policy labs that are working to combine innovation and co-design methods alongside better evidence of the effectiveness of interventions.

To build on these reflections there are a number of possible avenues of further research. Firstly, defining and developing the operating conditions under which meaningful citizen,

business and policy-maker collaborations can be developed. Secondly, an exploration of how inclusion of co-design approaches affects specific policy domains. These two avenues alone imply that further development of the theoretical and practical framework of co-design for policy and public services is required.

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Capturing the “How”: Showing the value of co-design through creative evaluation

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Abstract: Evaluation is undertaken for various reasons from helping to ensure that objectives are met to identifying success. This paper examines the significance of creative evaluation in a co-design approach. We have identified a major gap in appropriately embedding evaluation into engagement and consultation processes. The study explores the use of evaluation to evidence the value of co-design and consultation. As a part of this we have established a broad framework to gather information and data to build a portfolio of evidence to evidence the difference we are making. From the initial studies we have identified findings that are significant and shared across our partners within their evaluation practice. Throughout the project, our evaluation is embedded in our process. We have proposed an evaluation process, and an evaluation framework which will be used at various stages of the project to capture evidence. At each stage we capture the impact in a meaningful format so it is visible to communities and the researchers, in turn making evaluation a collaborative process. For this purpose, we developed a creative evaluation approach which is innovative, engaging but also designed in an unobtrusive manner.

Keywords: Creative Evaluation, Co-Design, Engagement and Evidence Gathering

Introduction

There is an increasing demand for approaches that improve engagement with communities, driven by the need to better involve citizens in decisions that affect them, underpinned by legislative imperative. In addition, communities themselves are corralling around common agendas and need tools to help inclusive engagement. Tools for consultation which are not only engaging but also effective and efficient would help radically improve this landscape, especially for “hard to reach” communities, where engagement is not easily facilitated. In situations where designers are involved in working with participants for product development a relationship emerges between the designer and the public. During this



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situations the users accept roles as experts and the new designers role is to support (Ehn,2008). With grass roots, bottom up social innovations where the emphasis is on a public led approach to design, designers are demonstrably serving as triggers for initiatives, their role being to activate and facilitate civic creativity (Lee & Ho, 2012).

Despite the increase in engagement and consultation, capturing the value of engagement between the public sector and the communities with which they work is critically important but unfortunately rare. To justify the necessary resources there is an increasing need to better demonstrate the return on investment of such approaches for purposes of transparency, suitability and effectiveness of the chosen methods, as well as articulating impact better.

To address this challenge, Leapfrog: transforming public sector engagement by design, is a £1.2million Connected Communities project funded by the AHRC. The Leapfrog project is working in close collaboration with public sector and community partners to design and evaluate new approaches to consultation. (see www.Leanfrog.tools).Delivered through a partnership between ImaginationLancaster at Lancaster University, and the Institute of Design Innovation at the Glasgow School of Art. The project is working initially with communities in Lancashire and the Highlands and Islands of Scotland and then more broadly across the UK Leapfrog will help create and evaluate new tools and models of creative engagement.

This partnership was brought together to ensure that the tool development and implementation is tested in challenging circumstances. Lancashire has closely packed overlapping communities that are hard to engage, e.g. with low rates of English literacy. The Highlands and Islands communities are very geographically dispersed and isolated (i.e. hard to reach physically) and as such are strongly motivated to innovate by the difficulties they face in terms of communications and access. Working across these two locations and their “hard to reach” communities will stress test these new consultation approaches and help make them more robust when applied in other parts of the UK. Leapfrog will also address the challenge of integrating creative evaluation into these tools and approaches such that the value of this engagement and the impact it generates can be suitably captured.

Why creative evaluation is needed

Evaluation refers to judging, as when we need to express the value of an object or an action (Scriven, 2007; Farrell et al., 2002). In other words, we address evaluation when we need to decide about actions in which we are an active part, but also when we need to comprehend or verify the value of something. In doing so, we analyse all the information that is available to us and the conditions at play.

Within the field of social studies and community development, when we talk about evaluation we refer to a systematic assessment based on certain methodologies and procedures which review and ensure the legitimacy of the results (Ander-Egg, 2000). Fournier (2005) defines evaluation as an investigation process that aims to gather and

synthesise data in order to develop conclusions. For him, conclusions have two dimensions, the veracity of something and the value placed on something. It is the value aspect which differentiates evaluation from other kind of investigation. In an evaluation study typically we hear stakeholders’ value (things stakeholder consider to be important).

In recent years, the so-called third sector has shifted from a positivist perspective of understanding social change to a convoluted and complex view of the world in which systems are in continuous change such as culture, economy, demographics or politics (Kelly, 2010; Lacayo, nd). Practitioners in this area have realised that social change is not governed by linear rules in which implementations lead to predictable outcomes. This issue therefore also needs to be addressed by evaluation practices, including an understanding that social relationships and interactions are extremely important for success. All these factors are inherent in the complex environments and complex contexts in which communities live and operate.

As Barnes, Matka and Sullivan (2003) state, evaluating complexity means assessing “complex community initiatives” (Connell et al., 1995) which aim to produce an impact in different levels within individuals, families, communities, organisations and systems (as Knox, 1995; Sanderson; 2000). The key concern for Leapfrog (and indeed any evaluation of collaborative approaches and community endeavor) is the outcomes (goals of the community development initiatives) for evaluating complexity. The outcomes cannot be pre-determined because of many factors, such as emergence, nonlinearity, uncertainty, adaptation and constant change, interact simultaneously. This uncertainty has led to a shift in the role evaluation plays in the social sector. In past decades, there were rarely evaluations in community development, often for the lack of time or resources, and others for distrust (Kahan and Kael, 2008), or they were extremely limited (restricted to reviewing activity). More recently effective evaluations are requested internationally and locally, largely influenced by the need to show a return on investment, particularly during the recent recession (Forss, Marra and Schwartz, 2011). These demands have highlighted the lack of effective evaluation methods, to effectively address the challenges that community development entails. The social system consists of many components (Fitzpatrick, 2012) and the success of social change depends on the nature of its relationships. Hence, the system cannot be controlled and barely described by using cause and effect approaches (Preskill and Gopal, 2014). Kelly (2010) subscribes to this view due to the unique factors and history of each system. In fact, he states that evaluation is a crucial element of transformation in community development when is applied thoughtfully and intentionally.

A further consideration is that to create relevance and effectiveness, evaluations cannot be implemented outside the community (Cousins and Whitmore, 2004). As Kelly (2010) avers, designers need to get involved into the system and become “an engaged and trusted participant”. Similarly, Fitzpatrick (2012) encourages designers to expand their knowledge about evaluation by looking beyond their disciplines and local contexts to learn how others define and take into account context. She states that context is other key factor when conducting evaluations (Stake, 1974; Stufflebeam, 1971; Weiss, 1972). Thus, there is a gap

for studying in depth the role of context in evaluation. Of these, Greene (2005) defines context as the set of environmental conditions under which what is evaluated and the evaluation itself is located. Greene also states that context is multidimensional such as demographic and descriptive; economic and material features; institutional and organisational. This is extremely important when considering evaluation of approaches for community engagement, where external factors can have a major influence on success. The role of context changes according to the evaluation approach. In experimentalist evaluation, context is understood as an influential element, but external to the evaluation process, to be under control. In theory-oriented approaches, context is something that is going to happen and can be observed to explain changes. In qualitative approaches to evaluation, it is an intrinsic factor within the evaluation because “decontextualised information loses its meaning” (Greene, 2005). While in participatory approaches to evaluation, context is the focus and therefore the scenario in which to promote a social change. As can be seen from the above review, evaluation in this area is in need of improvement in approaches and methodologies in order to better capture the evidence of value in this complex environment. It is this exploration to which Leapfrog aims to contribute.

Co creation - What we have been doing in Leapfrog

Co-Design

According to Sanders and Stappers (2008), participatory design is nowadays renamed as co-design or co-creation. These approaches originated in the field of business and marketing. Co-creation is a term first introduced by Prahalad and Ramaswamy (2004) within management. They used it to define a shift in the business model, from a centred-view to a customised-view of products. Tseng and Piller (2003) talk about “mass customisation”, and von Hippel (2005) co-creates only with what he calls “lead-users”. This is criticised by Sanders and Stappers (2008) because they doubt the assumption that the “lead-users” represent all sectors of society.

The proclivity of a co-design approach to accept multiple perspectives and work with a wide range of stakeholders has seen it applied in contemporary society to address our current social and economic challenges. We find the approach often applied to areas such as policy design, environmental design, systems and services (Sanders & Stapper 2008). It is generally agreed that in order for co-design work to be done successfully we (the designers and citizens) need specialist tools to broker the relationships between designers, stakeholders and products, and that these tools allow stakeholders to ‘invest the world with their meaning’ (Illich, 1975). There are challenging spaces in the collaborative approach to design that recent literature has identified. Namely the fear of tokenism and the aim to appear inclusive and collaborative (Lee, 2008), some assumptions that co-design is driven by expert user input (Von Hippel, 2005) and that the process requires a power shift or at least a relinquishing of some control that flies on the face of an established centralised expert based mind-set. The inverse of these criticisms could describe the central tenets of co-design

approach: that everyone can play an active role; power is dispersed and lateral; civic inclusion is essential.

Leapfrog

The Leapfrog project works closely with public sector and community partners to design and evaluate new approaches to consultation through co-design. In Leapfrog, we are working with various partners from the remote “hard to reach” communities of the Highlands and Islands to the urban Lancashire communities. Partnering with ImaginationLancaster, Lancaster University and The Institute of Design Innovation at the Glasgow School of Art, we are developing and evaluating new models and tools, working initially with communities in Lancashire and the Highlands and Islands of Scotland and then more broadly across the UK.

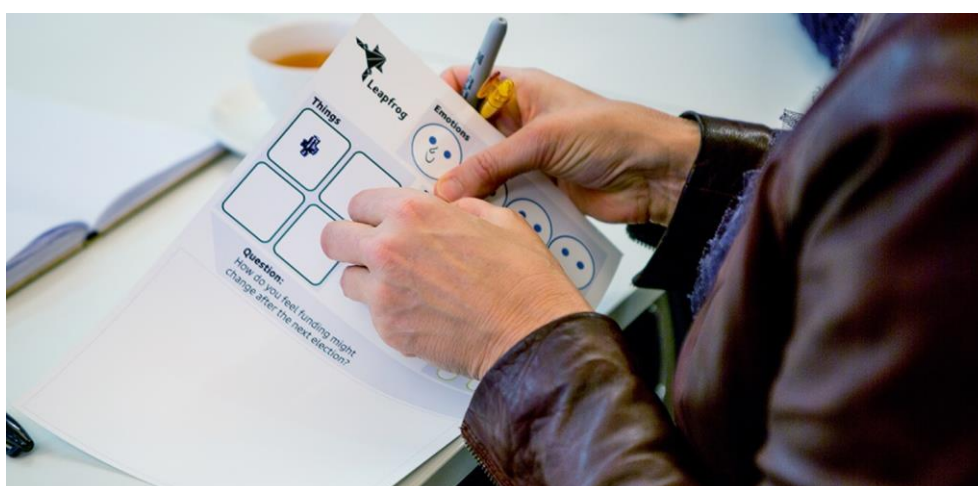


Figure 1 Non-written Consultation tool. Tools that enable people to contribute ideas and opinions without the need to write. These tools are used in communities directly by our partners to facilitate group work.



Figure 2 Creative evaluation tool to gather stories. Left - prototype of the Creative Evaluation Tool developed with our partners through co-design as part of a short project to gather qualitative data through stories. Right- Final version of the Creative Evaluation Tool packaged, assembled and ready to be distributed to the partners.

Within the Leapfrog project, we are currently developing and testing various engagement tools through co-design process as part of short projects and major projects. Working with communities and public sector organisations requires flexibility and agility. Short projects allow us to experiment and respond quickly to opportunities. Examples of ongoing short projects include Non-written Consultation [Figure 1], Make-it Stick and Gathering stories through Creative Evaluation [Figure 2]. These projects look mainly at developing tools through creative co-design workshop with range of public sector partners who were looking for practical assistance in developing new approaches for their consultation needs.

The Evaluation Game tool [Figure 2], is an outcome of one of our short project which provides participants an opportunity to reflect, discuss, share personal stories and experiences to feed into a collective evaluation. This tool has been adapted and used by our partners from Public Sector Organisation and Third Sector Organisations. Our partners have identified that the Evaluation Game tool helps them to categorise what was working, why, what could be better and help generate ideas for future improvements. With some partners the game was used as part of evaluating a training session offering a practical example of a way to creatively collect information.

Major projects involve more in-depth co-design and tool development processes. Through major project we aim to achieve a deeper and longer collaboration with our partners. Current major projects are specifically exploring Peer to peer Community Engagement in the Highlands and Islands, and Working with Young people in Lancashire. Each project works closely with partners to understand their evaluation needs, limitations and challenges with delivering projects within their respective communities. By doing so we also explore the preferred indicators and measurements that are currently in place with regards to stakeholders and their motivations for these measures.

Evaluation is at the core of Leapfrog. We aim to find measures that these public service providers look for when assessing the efficacy of their services & interventions, and also indicators that evidence the value of the consultation/collaborative process. While we explore these methods we also aim to understand the relationship between the partners and what difference these collaborations bring for impact. Throughout both the short major projects, evaluation is embedded in our process. In order to assist with this unique approach we developed an Evaluation framework that will support evidence capture to address our research questions.

Evaluation- some challenges

As previously identified in the literature study, there is a major gap in embedding evaluation within research projects which looks into community engagement and consultation process. In Leapfrog, this is a major research theme. Through evaluation within Leapfrog we aim to capture evidence of change for different audiences and across different levels of analysis [Table 2]. The Table [Table 2] indicates the proposed evaluation process, and shows how the

evaluation framework [Table 1] will be used at various stages of the project to capture specific aspects that will be meaningful to both our partners and researchers.

Table 2 Proposed Evaluation Process for Leapfrog Partners

1st substantive meeting)	Tool Delivery: Evaluating	1-2 Months after tool delivery: Evaluating	6-8 Months after tool delivery: Evaluating	24 Months after tool delivery (or as close to as possible): Evaluating
Base Line Tool	The (co-) design process	Any initial impacts	Comparison with the baseline tool evaluation, any changes?	Comparison with the baseline tool evaluation, any changes?
(Baseline questions described below)	The predicted effectiveness of the outcomes	How the tool has been used	Have the tools been adapted, how and why? Have these adaptations themselves been adapted?	Have the tools been adapted, how and why? Have these adaptations themselves been adapted?
		The effect on (positive or negative) engagement	How have the tools been shared, who has used them? How are they being employed?	How have the tools been shared, who has used them? How are they being employed?
		Have the tools been shared, to who, how, have they used them?	Is the tool still being used or seen as useful?	Is the tool still being used or seen as useful?
		Have the tools been adapted, how and why?	Any new skills developed or other effects of being part of the process?	Any new skills developed or other effects of being part of the process?
		Any surprises?	Any organizational effects	Any organizational effects
		Ownership ?	Any changes in behavior?	Any changes in behavior?
			Imagine if there had been no Leapfrog, how would things be different?	What has changed between now and the 6-8 month evaluation?

Our Evaluation not only focuses on measuring the final outcome (Did we, and our partners, achieve our outcomes), it also looks at which tools and approaches were most effective (What worked, what didn't, how efficient etc), but also the softer, more qualitative

elements, including the benefits of greater trust, collaboration and co-creation and also the process of change (how this happened). Overall Evaluation Captures:

- The Why: Did we achieve the objectives of the research programme that we set out to explore. In addition, did the partners we worked with achieve their objectives, this could range from to enable better engagement, to reduce cost and to inform policy more effectively.
- The What: Which tools did we develop and how suitable were they? Which worked best in which environments. Were they easy to implement, and easily shared. Did the evaluation process work seamlessly with the engagement process? What difference did this make to the group and the individual, as well as the partner/stakeholder?
- The How: We are developing these tools through co-creation, and some of them will be further developed and adapted beyond the immediate implementation. Working in collaboration to achieve this is a core part of the Leapfrog project. Capturing the level of partnership which can help show the how these relationships have matured and deepened to allow better and deeper engagement.

In addition, the ambition of the project is to make these evaluation processes engaging, such that communities themselves are active participants in the evaluation process. It should be remembered that evaluation is not audit, but instead should be all about learning and informing future delivery and approaches.

Previously, evaluation approaches have followed traditional methods such as surveys, focus groups and interviews. While such approaches are structured and capture key evaluation data, their appeal and effectiveness can suffer from not providing an engaging experience for participants [Preskill et al. 2015]. Also, they risk turning good indicators into definitive targets, which then become unrepresentative under a ‘tyranny of measurement’ [Merry, 2011]. In Leapfrog we are exploring the use of evaluation through new frameworks of co-design and consultation. They are intended to capture the effects of impact in a format meaningful to research and communities making evaluation part of the collaborative process. Our evaluation framework aims to be creative, innovative and engaging; and aim is to design unobtrusively within our consultation tools.

There are other elements within evaluation that need to be considered, including scope, context, causality and the balance of qualitative and quantitative measures.

- Scope: When undertaking an Evaluation, both the scope and focus are important. Is the evaluation narrowly focusing on an individual tool or an individual project or is it considering more broadly? For example, evaluating across number of projects to see what we learn from tool development.
- Context: The different context between the two research locations and their different “hard to reach” communities are precisely what is being explored in the Leapfrog project. As such the project is developing and delivering solutions for community consultation and engagement in urban environment such overlapping communities that are hard to engage, e.g. with low rates of

English literacy and also Highlands and Islands which are physically hard to reach communities. This will be our fundamental part of the research partnership.

- **Causality:** A key challenge for any evaluation of a complex and multifaceted endeavour is to evidence causality. Whereas there may be evidence of change, showing that this change is because of a certain intervention or approach is extremely difficult. To address this Leapfrog is aiming to gather a basket of evidence, which is sometime a better approach when there is not an easy linear connection. By gathering points of data and also telling human stories the evaluation can show that the leapfrog tools have made the difference.
- **Hard measure on soft issues.** In dealing with softer issues such as communication and engagement there is often the temptation to focus on the story telling. However sometimes identifying indicators of change that can show improvement over time, and particularly if they can be quantified in some way, can be a powerful communicator of that change. As such the evaluation develops “Hard measures on soft issues”. We need the mixture of quantitative and qualitative data. To help guide this Leapfrog is using the analogy of meringues. The initial starting point is soft (the egg white) but through the right treatment (whisking and cooking) and with the right tools, over time this can create something hard and substantial (although essentially still soft at the centre). We have termed this development of hard evidence over time as “meringification”.

Another key element of good quality evaluation is consistency and knowing the starting point. As such Leapfrog has established a broad framework within which to gather evidence, even in tailored interventions such that data gathered helps to build a portfolio of evidence to address the research questions.

Evaluation Framework

The Evaluation framework [Table 1] is divided into three overall evidence themes, which are:

30) Evidence of the difference in the process: Have the tools led to a different approach, with new and diverse people involved, and with different energy and engagement?

Evidence of the difference in the result: Through using the Leapfrog tools has this led to new, better, different outcomes and impacts for those delivering the engagement and for the ambitions of the communities involved?

31) Leapfrog Learning: Evidence of the effectiveness and usability of the tools. Also how transferable were they and how adaptable?

Table 1 Evaluation Framework

Evaluation Q	Evidence of:	Captured by:
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Difference in Process		
	Change in approach	e.g. change from before
	Deeper wider engagement	e.g. who involved
	Better use of capacity/resources	e.g. cost benefit, ROI for numbers etc
	Enjoyment/fun	e.g. level of engagement, feedback, observed energy
Difference in Result		
	Outcome quality	e.g. Previous experience of engagement, length of time, with who, frequency success and failure.
	Ownership of outcome	e.g. who engaged with next steps
	Legacy/sustainability	e.g. drive to take forward
	Surprising outcomes/emerging effect	e.g. additional benefit (better community relationships)
	Change in behaviours/attitude	e.g. better engagement, less negativity etc.
	New skills/capability	e.g. individual benefit and group capability
Leapfrog Learning		
Focus on tools	Usability	
	Adaptability	
	Mutation	
	Passing on/ripple	
	Building deeper tools?	i.e. our own adaptation of previous tools?
Focus on Research	Can we develop tools with	

Questions	embedded evaluation?	
Other learning (for us)	Gaps (need for further research)	
	Surprising outcomes	e.g. importance of the ability to cook/eat for research!
	Value of Design	

This evaluation framework underpins all our actions, from co-design to innovation in local consultation to widely distributed toolboxes. This framework is used to understand the real value and impact of the new tools that we develop as part of the projects. By establishing a framework, we enable diverse data and information to be collated and analysed coherently across the portfolio of projects. This evaluation framework is designed to be unobtrusive and to examine activities in terms that make sense and are seen as valuable to communities. Rather than evaluation being something that is 'done to' communities this will also be a collaborative, mutually beneficial shared process.

Conclusion

Leapfrog is at an early stage of delivery with the initial tools now being used in the field and available for sharing. We are currently in the process of undertaking our creative evaluation for these tools. More results and learning will undoubtedly emerge over the coming months and years. However, it is already understood that the project has developed learning for evaluation and evaluation approaches.

From the initial studies we have identified findings that are significant and shared across our partners within their evaluation practice. Early findings are:

- There is a need for creative engagement especially for evaluation emphasised by our partners during our initial studies. Such creative engagement has allowed people to reflect on their experience in a way that is comfortable and accessible for them
- Creative engagement tools gives meaningful data when they are clearly linked to your outcomes.
- The need to use a mix of quantitative and qualitative, and exploring ways to combine the two (through “meringuification”)
- The need to make evaluation engaging and enjoyable encouraging participants and users of the tools readily contribute to the evaluation process
- The need to have a structure such that even as each individual project is designed

The findings we have presented were gathered from our initial studies that gave us in-depth understanding of our partners' evaluation needs and challenges. The tools we have developed will attempt to address these issues. The findings suggest that creative evaluation is necessary for Leapfrog to gather basket of evidence to tell the human stories that shows that we and our partners have made the difference.

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Design in the Time of Policy Problems

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Abstract: This paper discusses an emerging context in which design expertise is being applied – the making of government policy. It reviews existing research and identifies the claim that design changes the nature of policy making. The paper then adapts a conceptual framework from social studies of science to make sense of the encounter between design and policy making. The paper applies this lens to an empirical account of design being applied to policy making in a team in the UK government. The findings are that in addition to supporting officials in applying design approaches, the team's work shapes the emergence of hybrid policy making practices, and at times problematizes the nature of policy making. It does this within logics of accountability, innovation, and reordering. The contribution is to provide empirical detail and a nuanced account of what happens in these encounter between design expertise and policy making practice.

Keywords: design thinking; experimentation; policy labs; interdisciplinarity

Introduction

This paper discusses the emergence of a context for the application of design expertise - the making of government policy, with accompanying practitioners, conferences, publications, researchers, and teaching and learning. Over the past decade, there has been growing interest in design thinking in policy and government. Taking various institutional forms, examples include specialist units inside government departments, notably Denmark's MindLab; inside local, city or regional governments, such as France's 27e Region; and within intermediary bodies such as Nesta's Public Policy Lab in the UK (Puttick et al 2014).

This area is fast growing. An event held in London in 2015 brought together over 350 participants involved in public innovation labs with a shared commitment to experimenting with new approaches from behavioural science to data science to design thinking (Nesta 2015). The UK national innovation agency Nesta, a co-organiser, estimated that there were then 100 labs internationally (ibid). In addition to the teams of civil servants using design



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approaches, there are now consultancies that specialize in supporting such efforts, some of them using the term “social design” as well as universities supporting these developments (Armstrong et al 2014). This emergence accompanies growing recognition that existing ways of doing things in the making of government policy are not addressing the many challenges facing nations and communities from climate change, to inequalities, to the global migration crisis. In a time of multiple, interconnected policy problems, some government functionaries are reaching for design expertise to help address them.

Remembering an interview with Charles and Ray Eames in 1972, one might have anticipated the trajectory for design thinking over the last decade from products into an expanded field including innovation, organisational strategy, and now policy (Kimbell 2011). Asked, “What are the boundaries of Design?” the Eames answered, “What are the boundaries of problems?” (Eames Office 2015).

An example of the kind of problem to which design thinking is now being applied is how policy makers can better support what the UK Government calls “troubled families”. Their troubles cost the multiple government agencies that intervene into their worlds £9 billion a year (UK Government 2015). With professional expertise that does not usually include topics such as education, healthcare, housing, employment, child protection, drugs and alcohol use, crime and so on, what claims does the field of design make about being able to reduce those troubles? How does design expertise render itself useful and accountable to people who are the object of government policy, and engage with civil servants, service providers, civil society organisations, politicians and the taxpayers who provide the funds and, arguably, the legitimacy to intervene into their lives?

To discuss this, the paper reviews existing research exploring what design approaches bring to the making of policy. It then provides new perspectives based on a study of one such exemplar in central government, Policy Lab in the UK Government’s Cabinet Office. Drawing on my participant observation in this team for a year, the paper examines how design was deployed in the making of government policy and what can happen in the encounters between designerly expertise and policy making practices through the lens of the social studies of science and technology.

The findings are that, in addition to supporting policy officials in the use of design methods in a service mode, design expertise shapes the emergence of new hybrid policy making practices, and at times problematises the nature of policy making itself. It does this within three logics or rationales, which may appear at different times in a project – a logic of accountability, a logic of innovation, and a logic of reordering.

The paper makes two contributions. It offers empirical detail about how design practices intersect with policy making practice from one of the first exemplars of design for policy in central government. Second, it broadens existing literature by adding nuance to the claim that design can change policy making.

Context

Design practice in policy contexts

Over the past decade there has been increasing interest in design-based approaches in public policy contexts with a particular focus on the design of public services and design for social innovation (eg Manzini and Jegou 2009; Brown and Wyatt 2010; Meroni and Sangiorgi 2011; Björgvinsson et al 2012; Manzini 2015; DESIS Network 2015). Inspired by the success of consumer firms rethinking their work as designing customer experiences, service design and design thinking have been taken up in central, local and regional government.

A brief snapshot of recent activity in just one country, the UK, gives a sense of this emerging field in which discussion about design of public services blurs into design for policy. Recent reports have argued for design expertise to be applied to public services (Design Commission 2013). The Design Council (2015) offers training and support to help public sector organisations apply design approaches to public services building on over a decade of experimentation (e.g. Cottam and Leadbeater 2004). The DIY Toolkit (2015) website produced by Nesta funded by the Rockefeller Foundation had 350,000 hits with 40,000 downloads in its first year. Annual conferences bring together international practitioners to share experiences (e.g. Service Design in Government 2016).

Researching design for policy

Within design studies there is as yet little research into this emerging field. A book edited by Bason (2014), previously head of MindLab, brought together practitioners and researchers exploring this area. A recurring theme is the idea that policy work is changing and needs to change, and that design brings new approaches to the making of policy. Bringing design into policy might be expected include the following, according to Junginger (2014):

- An orientation to understanding the experiences of people into whose lives policy making intervenes – a shift from being problem-centred to being “human-centred”; and
- An openness to inquiry and invention – helping envision and develop new possibilities for useful, usable and desirable policies.

In his concluding essay Bason (2014) identifies a shift between two kinds of policy making. The first mode, *intelligence-design-choice*, is currently dominant, in which public servants apply forethought to guide organizational action to solve problems. In contrast the emerging approach brings into view what Bason calls the “sensemaking policy maker” who practices *design-intelligence-choice* by paying closer attention to how problems are represented. As Bason puts it, “Design becomes the shaping of things while engaging with others in the flow of action and the production of outcomes” (Bason 2014: 229).

A chapter by Christiansen and Bunt (2014) describes how policy making is reconfigured through design:

- By providing a focus on outcomes, rather than solutions;

- By creating systems that enable post-production, rather than stand alone services;
- By experimenting to produce the grounds for conviction; and
- By recognizing and exercising a new type of authority that is distributed, rather than hierarchical.

Together these accounts of design *for* policy making argue that policy making practices, models and expertise are changed as a result of this encounter.

While policy may be a new context for applying design thinking, policy researchers have shown interest in policy design for some decades. As summarized by Howlett (2014), policy design is about developing efficient and effective policies by applying knowledge about policy means gained from experience and reason to the development and adoption of courses of action that are likely to succeed in achieving intended goals within specific policy contexts. Tracking a history of academic research in policy design, he sees this area as underexplored and identifies the emergence of new interest. One example of this, Considine (2012), identifies a line of research that recognizes design expertise in processing data, reading situations, and seeing imaginative solutions and proposes this as the basis of a model of public policy design expertise.

Looking more broadly at the context in which design meets policy, Williamson (2015a) discusses the emergence of government innovation labs with a focus on educational policy. He argues that such labs represent a distinctive approach to the use of emerging techniques, instruments and methods of governance. He argues that such labs redefine the nature of the problems that policy should address, alongside simultaneously specifying the kinds of solutions appropriate to remedying them. However public servants involved such innovation labs are not attentive to the theories or histories on which advocacy of policy experimentation draws (Williamson 2015b).

In short there is not yet a significant body of research examining design in the context of policy making. On the one hand there are claims about the efficacy of design approaches in public service and policy contexts, arguing that they offer an important shift in practice and focus. Meanwhile in the policy literature, there is interest in policy design but as yet little awareness of recent developments in practice. Critical and historical approaches note the conversations such developments are part of, including algorithmic decision-making, different kinds of evidence and experimentation, and new actors involved in making policy. A gap that can be identified is to understand what happens in the encounters between design expertise and policy making practice, recognizing the narratives about innovation with which they are both currently tied.

Approach and methods

Approach

To explore the encounter between design expertise and policy making practice, this paper adopts a conceptual framework and uses it to discuss an empirical case. The data comes from a study I undertook while embedded in a small team of civil servants in the UK government, Policy Lab based in the Cabinet Office (Kimbell 2015). Through my participant observation I was involved both in co-constituting the team's practice by helping deliver some of its activities and by contributing to its collective sense-making informed by organisational ethnography (Neyland 2007). My activities included helping design, facilitate and document workshops, and discussing what was happening in person and via email and social media, thus directly shaping some of the projects the team undertook.

Conceptual framework

To make sense of the encounter between the two fields discussed here, it is useful to turn to research on interdisciplinarity in the social studies of science and technology. In a study which analysed the encounters between several different fields of knowledge and practice, Barry et al (2008) identified three ways that disciplines engage. The authors studied social science in relation to climate change science; social science in relation to technology innovation; and experimental art practice in relation to science. Each of these can be seen as an area in which people and institutions with different expertise come together to create new kinds of knowledge and practice that can expand the boundaries and ways of working of the originating fields. Adapting Barry et al's findings suggests three modes of engagement between design and policy:

- In *service* mode, one discipline or field being is in service to another to fulfill a need or address a lack with a hierarchical division of labour. For example design expertise supports policy making by creating visualisations of people's experiences of government services or policies for civil servants to use.
- In *partner* mode, two or more fields integrate to combine resources resulting in new ways of doing things, whose value is assessed according to the criteria of antecedent fields. For example design and policy making expertise are combined into a new hybrid that is recognizable to specialists from each and can be made sense of in existing terms.
- In *challenge* mode, one discipline's way of approaching problems and solutions calls into question the assumptions, claims and methods of another. Such interdisciplinary encounters spring from a self-conscious dialogue with, or criticism of, the limits and status of existing fields. Challenges can be antagonistic (in which the tensions are not productive) or agonistic (in which the tensions are productive).

Barry et al (ibid) also identified three logics or rationales within which these modes play out, adapted here for this discussion.

- The first logic is *accountability* – the idea that one field’s knowledge base or expertise (for example designers using inventive methods to engage with service users and stakeholders) can help another field to better engage with the publics to whom it is accountable.
- The second is the logic of *innovation* – the idea that new kinds of expertise and novel solutions will only come about by going beyond existing ways of doing things. For example, combining aspects of existing fields will generate results that open up the space for future possibilities to emerge (Barry et al 2008: 26).
- The third is *re-ordering* – the idea that what a field is made up of and concerned with is not a given and may be changed in the interactions with other specialisms. This results in “new objects and practices of knowledge, practices that are irreducible to previous disciplinary knowledge formations and to accountability and innovation” (Barry et al 2008: 42).

Using this framework has the following advantages. Firstly, there are similarities between Barry et al’s study of interdisciplinarity and current changes in policy making practice. Just as interdisciplinary research is promoted as being able to make science more accountable to society and to make links between research and innovation, so too open policy making (UK Government 2016) is expected to make the civil service more accountable to its stakeholders and to drive government innovation. Second, there are similarities between the kinds of research and practice Barry et al discuss and the activities that Policy Lab enables inside government including methods to generate ideas, engage with participants, and use ethnographically-informed research to shape strategy. Third, much of the narrative and practice associated with policy making is tied up doing and interpreting “evidence”. Policy making sits on the cusp of knowing the world and acting in and on it. Contemporary discussions about evidence-based policy, as well accounts of experimental policy making using randomised control trials, push policy making practice into encounters with other fields of expertise. Finally, the framework is informed by a long tradition of empirical study which is attentive to the embodied material practices through which knowledge is produced.

Research site and background

Policy Lab was set up in early 2014 to bring new approaches, tools and techniques to the work of policy officials in the UK Civil Service. Describing itself as a “proving ground”, Policy Lab has worked with policy teams in government departments on practical projects, using a range of methods from ethnographic research to collaborative idea generation to prototyping, combining design, digital and data (Siodmok 2014). Policy Lab emerged in the context of emerging narratives such as the Civil Service Reform Plan (UK Government 2012) which, among other things, made commitments to “open policy making” becoming the default drawing on a range of experts from academics to those who will deliver the policy; and ensuring civil servants have the necessary expertise, tools and techniques, and a clear

understanding of what works in practice. A year later, a Civil Service report (UK Government 2013) promised to

- Fund a Policy Lab to promote innovative techniques such as design-based thinking and ethnography to approach policy problems in a new way;
- Develop a culture where openness to new evidence, involving a broader range of inputs and experts and experimentation was the starting point to solving problems and developing options by trialing, testing and iterating, with implementation in mind.

For the first two years, Policy Lab was funded by government departments to be a cross-government resource to support policy officials to try out new ways of working. Based in the Cabinet Office, Policy Lab was closely tied to discussion about innovation produced by the government but also intermediaries such as Nesta as discussed by Williamson (2015a).

In its first year Policy Lab had a core team equivalent to 2.4 full-time staff. Led by Dr Andrea Siodmok, an experienced strategic designer, Policy Lab works with collaborators inside government and with specialist UK consultancies. In its first year its demonstrator projects included working with the Home Office on digital policing, with the Ministry of Justice on supporting couples with children going through divorce or separation and with the Department of Work and Pensions and Department of Health on health and work. It also delivers one-off workshops for civil servants, having given around 3000 people in the first 18 months opportunities to try out creativity and collaboration techniques.

Data gathering and analysis

Data gathering took place as a result of my being embedded in Policy Lab three days a week for a year. Data included fieldnotes and photographs; documents produced by the Policy Lab team such as presentations, project briefs, reports and summaries of meetings; emails and social media activity including Twitter and SlideShare files; and blog posts such as the Cabinet Office's Open Policy blog. In addition to my participant observation, I conducted semi-structured interviews with civil servants and others working with them. Much of this material is confidential and in the vignettes that follow, some details have been changed. I informed participants of my status in the team as a researcher, anonymised many details and, when doing interviews, gained written informed consent.

Analysis and interpretation happened through iterative cycles of identifying themes in the data; creating accounts and sharing them with participants including civil servants; triangulating these accounts with other people; and referring back to other sources such as practitioner blogs and reports and academic literature.

Encounters between design expertise and policy making practice

The discussion that follows reviews the intersections of design expertise and policy making practice via projects from Policy Lab's pilot year through the conceptual lens offered by

Barry et al (2008). The discussion highlights the multiple and at times contradictory ways that design expertise played out in its encounters with policy making practice.

System re-design workshop

The first example comes from a project that Policy Lab conducted with the Ministry of Justice (MOJ) about family mediation services. This was an area in which current policy was not working. A change in the law had resulted in removing the option of state-funded legal advice for couples getting divorced. Instead, there were now mediation services to encourage people not to go to court when separating, which then became mandatory before applying to court and for which some parties could receive for free (see Kimbell 2014 for more detail).

MOJ set up a project which saw Policy Lab *service* the policy team by supporting them to try out new approaches to inform the thinking about family mediation. Policy Lab worked with a partner, Innovation Unit, to undertake ethnographically-informed interviews with people going through divorce, including people using mediation services, and with providers of services.

Towards the end of the 10 week project Policy Lab and Innovation Unit convened a one-day workshop in which I was a participant, which brought together 33 stakeholders involved in the issue. This included policy officials and people representing different aspects of family law including mediators, lawyers, judges and other specialists such as people providing voluntary services. Within the logic of *accountability*, Policy Lab helped the department engage in new ways with publics involved in the issue.

Activities in the workshop included small teams of people with different expertise working together to explore the issue of couples with children going through separation and divorce. First they reviewed printed versions of personas generated from the research. Through discussing these accounts, participants brought into view the lived experience of these individuals. Then the teams created visions for how people could reach agreement about family disputes without going to court (see Figure 1). Having prioritized three of these visions, teams then created roadmaps for how actors in the issue – including their own organisations – could work together differently to achieve their vision.

The outcomes of the workshop were the establishment of a collective but temporary inquiry into parents going through separation or divorce; a clearer sense of the publics to whom this was an issue and the relationships between them; recognition of the need to collaborate and reconfigure resources and enable change at a systems level to achieve the intended policy outcome; and new capacities amongst participants to situate themselves differently in relation to the issue.

The MOJ policy team were familiar with the issue and many of the actors in it. For them, the value of the workshop was to convene a new way of working which resulted in a *re-ordering* of the policy arena. Instead of the sometimes antagonistic engagements between civil servants and some actors in this sector, this workshop engaged participants in a

collaborative, open way of working which, convened by Policy Lab and an independent consultancy, to produce what some of the civil servants referred to as a “neutral space” in which they could explore the issue together.



Figure 1 Photo from Policy Lab/Innovation Unit system redesign workshop showing a mixed group of participants from different backgrounds collectively generating a vision for the future of family mediation.

Reflecting later on the workshop, a civil servant from MOJ commented,

“I was really impressed with [the service providers] who don’t have the opportunity to think about the bigger picture ... [In the workshop they] were enthusiastic and engaged and able to take on our policy problem and help us out with it, even though some of the things that were being suggested might have an adverse effect on their service. But they were able to see it from a much bigger picture and not just about them.”

The workshop brought into view the experiences of people going through separation or divorce, and engaged participants in collaborating with others to construct future visions of services and roadmaps. In so doing, this enabled participants to open up their assumptions about how the policy area was constituted and what it was made up of. Many of the participants were familiar with the issue but the workshop activities resulted in a *re-ordering* of the issue, including – at least for a few hours – their current relations to it and to one another.

The policy sprint

The second example comes from a joint project between Policy Lab with the Department of Work and Pensions (DWP) and Department of Health (DH) in a complex and politically contentious area about providing welfare support to people out of work. This took place in the context of significant changes such as a general election and plans for further major cuts to budgets and to welfare benefits. The first phase of this project (which later further developed) took place over five months.

The particular focus was finding new ways to support people in work with health conditions. Below a policy adviser from DWP describes the drivers shaping the project, in which Policy Lab *serviced* the policy teams by bringing in external expertise in ethnographic research. Here his account uses a logic of *re-ordering*, in which external perspectives (users' experiences) could drive central government policy rather than the other way round.

"Thinking about things from the user end is alluring because policy tends to come down from central government, and ends up with the people on the front line doing their best to try and combine all of that with what's in front of them. So we need to reverse some of that thinking, to strengthen that input from the user end, to counterbalance some of the centrally driven stuff. That's why it's appealing. What we've been trying to do is look at all the tiers together. And make sure there isn't such a big gap between head office and the front end."

As well as servicing the departments, Policy Lab *partnered* with them shaped by the logic of *innovation*. It took the lead on organising and facilitating the project, working closely with the departmental policy leads to design and resource the activities, resulting in new hybrid ways of doing policy work. For example Policy Lab and its partners convened a "policy sprint" workshop to kickstart the project (see Figure 2) (Drew 2015).

This was a 2.5 day workshop that I was actively involved in helping design and facilitate in the form of a collective inquiry into work and health. It involved about 20 people including policy makers, analysts, designers, researchers and stakeholders in exploring existing evidence, identifying gaps, articulating research themes and questions that the project could answer through ethnography and data science, shaped by the lens focusing on people's experiences of ill-health and work. The group produced a research design for the project and a high level plan for how the joint project would unfold through the combination of different resources and expertise. On the final morning several representatives from stakeholder organisations including clinicians and employers reviewed the scope of the emerging project, gave feedback and were interviewed to produce further insights into the perspectives of people affected by the issue. As the Policy Lab lead Cat Drew put it in her blog post after the event, "It's not often that stakeholders are invited in at the 'understanding the problem' stage, before we have any ideas to test and they seemed to like it: *'Thought yesterday was great: it really felt collaborative and productive'*" (Drew 2015).

The outcomes of the sprint were the establishment of a collective inquiry into ill-health and work in the context of policy across a diverse group of people; a clearer sense of the publics to whom this was an issue; and different ways of thinking about and constituting the issue.

While these activities were associated with the logic of *innovation*, the policy sprint itself produced moments of *reordering*. For example while participants were coming up with research questions for their joint project to explore, one, who works for an organisation supporting people looking for work, posed the question: “What is good work?” This question introduced an important but uncomfortable space within the shared project. It prompted participants to step back and consider from whose perspective the project was being run and its ultimate purpose.

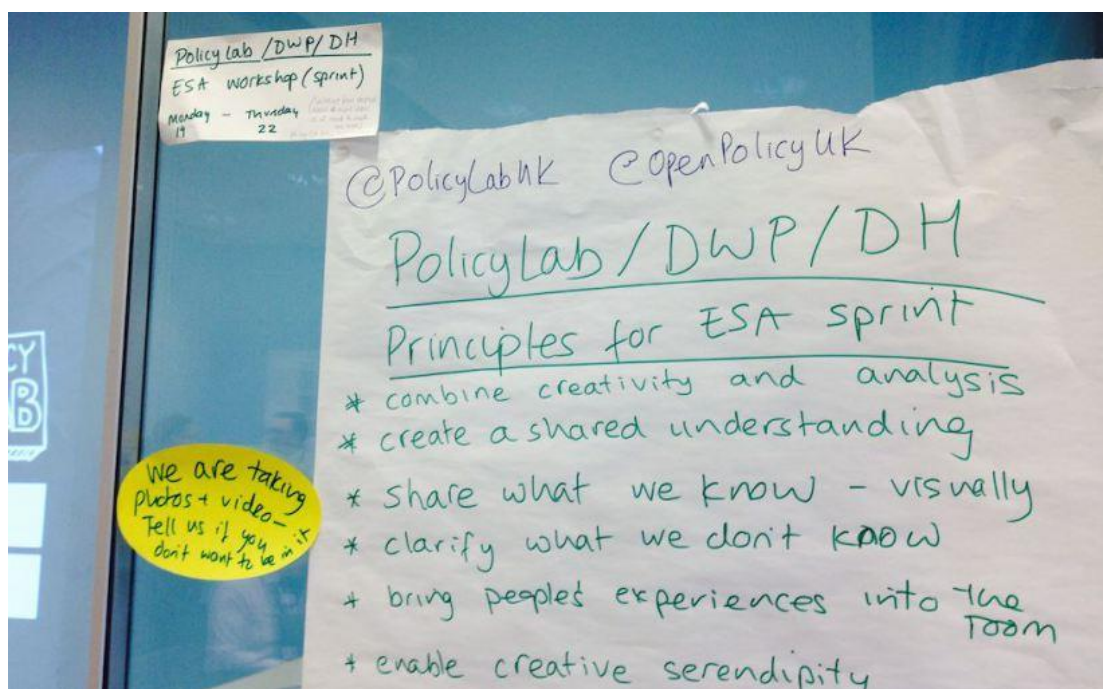


Figure 2 Photo from Policy Lab's first "policy sprint" workshop showing its design principles during a joint project with the Department of Work and Pensions and Department of Health

For policy makers, the locus of activity is usually the minister in their department, shaped by the rationale of accountability to the rest of government and to voters. But by posing this question, the participants shifted – at least potentially – the major focus of accountability away from ministers towards the people who are the objects of government policy. Asking “what is good work?” resulted in a temporary re-ordering of what matters. Here the mode of design was to *challenge*, not just partner. The lead official had agreed to collaborate in the project within a logic of accountability. But one of the results was to pose as a question the nature of “good work” and its outcomes within people’s lives, rather than “government policy” or “reducing costs”. This question surfaced the irreducible politics in policy development, namely who gets to define, structure and shape future visions.

Conclusion

In its pilot phase, Policy Lab successfully demonstrated that approaches and methods associated with design expertise can be used within central government in relation to live

policy issues. Policy Lab helped civil servants from government departments apply design within their day-to-day policy development work. To do this it engaged specialist consultancies, people with first hand experience of a policy issue, front line staff and delivery partners in research, sense making, idea generation and prototyping, resulting in positive outcomes for participants which included:

- Situating projects as collective inquiries involving a broad range of participants into issues, structures and processes through which problems and solutions would emerge;
- Setting up ways for civil servants to try out different ways of doing and knowing in relation to one another and to other publics and the issues they work on;
- Reordering what matters, by bringing into view the experiences and worlds of people affected by or involved in a policy issue and making project teams accountable to this evidence.

Using Barry et al's (2008) analysis of interdisciplinarity offers a way to go beyond common descriptions of the "value" of design to governments interested in assessing its impact. The use of design expertise was located within narratives of accountability, innovation and re-ordering. At times design was in service to policy makers, providing them with expertise in methods (such as collaborative idea generation with stakeholders) or the production of outputs (such as visualisations of people's experiences of a policy issue). At other times this expertise was recombined into new forms of policy making. But at times the encounter between design and policy making presented a challenge to the regular way of doing things by surfacing uncomfortable truths. Thus as well exploring and generating what new policy making capabilities might be, design problematised policy making – and this could be a significant part of its contribution. But with this possibility comes a new challenge for design in the time of policy problems – posing the question of what kinds of visions, worlds and communities such practices might help bring into being and the ethical and political implications for design professionals involved in such work.

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The introduction of design to policymaking: Policy Lab and the UK government

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Abstract: The use of design within government institutions is a rapidly accelerating trend of global dimensions. The emergent nature of these design practices, and cultures, raises questions about what exactly is happening in the interactions between design and political institutions, and how that might be understood in broader socio-economic and political terms. This paper reports on a series of interviews with senior level civil servants working in UK central government, all of whom have had some exposure to design methods and techniques through interaction with the UK Policy Lab. The paper sets out the ways in which the epistemology and practices of design, as introduced through Policy Lab, both expose and challenge those of the political institutions and policy professionals they seek to change.

Keywords: design, design thinking, policymaking, politics

Introduction

In recent years there has been a growing interest in design by governments seeking to innovate practices of governing. A number of administrations are experimenting with approaches derived from participatory, co-design, and service design, to improve service delivery and develop strategy and policy. The phenomenon is beginning to feature in design research: through mapping exercises undertaken, for example, by the Parsons New School for Design Desis Lab, Reos Partners, and *Social Design Futures* (Armstrong et al, 2014). It is also reflected in the emergence of conferences (such as Labworks 2014 and 2015), websites (such as researchingdesignforpolicy.wordpress.com and policy-design.org), books (Bason 2014, Jefferies et al 2013), PhDs (Christensen 2015) and a journal ('The Annual Review of Policy Design', 2013).



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Much like other governance reform movements, the drivers for the adoption of design within different administrations are presumably various – and can be subjected to critique from across the spectrum of political standpoints (see Leggett for an analogous critique of ‘nudge’ techniques): the further encroachment of neoliberalism and the logic of the market, or a sincere attempt to improve the lives of citizens by better adapting to a 21st century problem field (Dunleavy et al, 2005), preventing ‘blunders’ (King and Crewe, 2013), and orienting administrations away from their own institutional perspectives. As it enters the world of government decision-making, it is timely to reflect on how design is being mobilised to extend and enable techniques of governance. Approaching the subject through a governmentality (Foucault 1991, Miller and Rose 1988, Tunstall) frame opens up a deeper and more critical analysis.

Building on research that sees design as a contingent and situated set of practices (Kimbell 2013, Shove 2007), and design cultures as specific to, even generated by, social, economic and political systems (Julier 2007, Dilnot 2014), this research seeks to extend existing accounts of the uses of design in government, and particularly in strategic-level decision making, by attending to the specificity of the political context within which these design cultures are emerging. In order to begin to understand what design is doing in policymaking, and how that might be read within wider political narratives, a study was conducted focusing on the first year of work of the UK Policy Lab¹ (see also Kimbell 2015).

Policy Lab is a small team within the Cabinet Office (the central department of the UK government responsible for supporting the prime minister and their cabinet), established in 2014. The remit of Policy Lab is to support policymakers to transform their approach to policymaking by demonstrating new tools and techniques, generating new knowledge and skills, and facilitating a long-term shift in policymaking practice. This study consisted of a series of interviews with senior civil servants, all of whom have had contact with or experience of working with Policy Lab.

This paper focuses first on what these interviews reveal about what design is doing in policymaking, and, second, considers the potential for critical readings of this trend from a broader governmentality perspective. What is perhaps most interesting is not so much an account of the insights, ideas and proposals that a design-based approach can generate – all of which it might be possible to predict from a reading of the design thinking literature (both academic and popular accounts: Brown 2009, Martin 2009, Cross 2001, Dorst 2015, Buchanan 1992, Michlewski 2008, Kimbell 2011) – but what happens when this approach to problem-solving collides with a specific institutional culture.

Method

Fifteen interviews were undertaken, over the period May-July 2015, with a focus on the specific effects of Policy Lab’s design methods and approach, and particularly the distinction between this kind of practice and ‘normal’ civil service practice. The research reported in

¹ <https://openpolicy.blog.gov.uk/category/policy-lab/>

this paper was conducted as part of a wider study by BOP Consulting (for whom the first author was working at the time) assessing the impact of Policy Lab in its first year of operation. Interviewees were approached initially to inform the impact study, and as part of that conversation consent was obtained to use these texts for the purposes of the research reported here.

For the interviews the Policy Lab team proposed a longlist of participants that encompassed a range of levels of seniority, types of project, and points of view (they were asked to include people they knew to be sceptical about their methods as well as enthusiasts), from which 15 civil servants from 8 government departments (shown in Table 1, below) were selected for interview. Most were interviewed in person in their own departmental environment (a small number of interviews were conducted by telephone), and these conversations were recorded and transcribed.

Table 1. UK Government departments of interviewees

Government Department	Number of Interviews
Department of Business Innovation and Skills	1
Department of Work and Pensions	3
Ministry of Justice	2
Department of Health	1
HM Revenue & Customs	1
Office of the Deputy Prime Minister	2
Home Office/ Police	2
Cabinet Office	3

The transcribed text of the interviews were reviewed and revealed a number of commonly recurring themes. Some of these relate specifically to the perceived attributes of design, and are drawn out in section 3.2. However others were reflections on the culture and practices of the civil service and the political institutions it serves: the hierarchical structure and choreographed processes, the particular organisational aesthetic, the way knowledge is understood and intelligence and skill are performed, and the timing and rhythms of politics itself. This second set of themes is discussed in more depth in sections 3.3-3.7, drawing extensively on phrases and quotes from the interview transcripts. Interviewees have been quoted anonymously, including omitting job titles that in certain cases would make them identifiable, given the sensitivity of some of the subject matter.

Because of the pre-existing relationship with Policy Lab, and the purpose of the conversations being an open and frank assessment of the team's work, these interviews represent an unusually candid set of views from senior civil servants about their institution and its policymaking practice and culture. As such they offer a unique opportunity to understand how civil servants are making sense of design practices.

Design in policymaking

Design approaches to policy problems

What does 'design' mean in a policymaking context? Policy Lab markets its offer as contributing 'design, data and digital' capabilities to the suite of policymaking tools used in government (RSA Journal 2014). Engagements with civil service teams range from two-hour-long introductory workshops, to projects lasting several months. In such engagements 'design' refers to:

- modes of research that explore lived experience, often based on design ethnography;
- collective inquiry;
- the use of provocations and speculations as a research probe;
- generative techniques drawn from co-design and co-production;
- collaborative creativity;
- modelling techniques such as prototyping; and agile project methodologies.

These activities take place in settings and through conversations facilitated by a range of materials: coloured pens and paper, post-it notes, play-doh and craft materials, co-design templates such as personas or user journey maps, and other prompts such as photographs and visual materials.

Table 2 (below) lists some of the projects delivered by Policy Lab in its first year, in partnership with the government departments listed in Table 1, and other external agencies.

Table 2 A selection of policy challenges addressed by Policy Lab.

Project name	Department/ team	Project description
Family Mediation	Ministry of Justice	How can divorcing couples be persuaded to mediate, rather than going to court – which is more costly for everyone involved.
Policy Profession Assessment	Policy Profession Support Unit	Rethinking the way that the performance of policy professionals is measured, and their careers are supported, to help those civil servants better understand how to develop their skills and capabilities as policymakers.
Disability and Health Employment	Department of Work and Pensions and the Department of Health	How can disabled people, or people with health conditions who are at risk of unemployment, be kept in work to avoid the personal cost of potential long-term unemployment, which can exacerbate health conditions.
Young People and National Insurance Numbers	HMRC (Her Majesty's Revenue and Customs)	How might young people be encouraged to look after their National Insurance number once received, and how can this interaction act as the start of a life-long relationship between citizen and government?

An Emerging Design Culture

Interviewees were asked directly what was different, useful, or problematic about using a more designerly approach to developing policy. All 15 interviewees acknowledged a need for change in policymaking practice, whether that is to do with meeting the demands of an austerity regime, a recognition that some policy – especially social policy – has systematically failed to achieve what it is meant to, or for the sake of improving policymaking as an ‘art’ in its own right. As a response to that need for change, the design that they had been introduced to was recognised to offer something of value, the accounts of which were familiar from existing accounts of the value of design and ‘design thinking’. To mention a few instances, they commented on:

Different modes of evidence gathering, producing new and different kinds of insight:

“as a technique it was really successful in getting a group...into thinking about the future. It structured the responses they gave, so it made what they said more structured and more usable.”

Reordering the hierarchy of evidence:

“There are multiple considerations and it added more power and authority to some. It gives them a status they might not otherwise have. Like some of the softer things around user experience.”

Enabling more open thinking:

“the people who normally would start by saying ‘that’ll never happen’ – it swept that out the way.”

Engendering collaboration and buy-in:

“Although I probably could have predicted the outcomes we arrived at, the process was vital for getting buy-in from a larger group of stakeholders.”

Reconfiguring relationships between people:

“The primary impact is that senior people are now engaging with each other on a list of solutions... whilst there are still multiple hurdles to achieving policy change, there is now a very clear conversation going on.”

Translating evidence and insight into ideas (for policies):

“They came out with some very basic stuff that just would never have occurred to me... the ideas are not complex but they’re coming from an angle completely different to mine.”

In these conversations, design was discussed primarily in terms of ‘tools’, ‘methods’, or ‘techniques’ that might be applied. This is partly to do with how Policy Lab has presented itself in order to encourage the adoption of its practices. But it reinforces the perception that all that needs to happen is for civil servants to pick up some new policymaking tools as they might a hammer or a screwdriver. The service Policy Lab provides is conceived of as “access to some techniques that weren’t within their skillsets”, rather than a shift in how government thinks about problems and its capacities to ‘solve’ them. Within the narrow

view of rational choice and other traditional linear models of policy decision-making, design can simply be read as a set of methods that generate a greater number of options from which to choose at a given point in the process. But it is also possible to see what Policy Lab is doing with design as generating an entirely different decision-making model for policy (Considine 2012).

So, what do our interviewees think? And if, as has been proposed within debates about design research practice (Dorst 2008), we expand our focus from ‘the process’, to encompass object, actor and context, what might these interviews reveal beyond the critique of a set of design processes? In many cases, although interviewees made overt statements about the usefulness or not of Policy Lab’s tools, implicit in their answers was a suggestion that Policy Lab’s approach is challenging in a more fundamental way.

Whitehall policymaking culture¹

Imprinted on these conversations about design is the image of a powerful institutional culture, and a feature of all the texts is the conflict between this culture and the design ‘tools’ on offer: conflicts around what is considered to be knowledge, intelligence, and skilled practice, around the aesthetics of the institution, and around the nature of political relationships and timescales.

The qualities of the Whitehall policymaking community’s ‘culture’ emerge in the interviews in several ways. As an attention to hierarchy: people make overt statements about their ‘grade’² and the implications of that, and exhibit a general upwards-facing orientation. Information is constantly being filtered and delivered up through the hierarchy, with permission and decisions flowing back down in return. This is perhaps not surprising given the top-down nature of ministerial control of departments.

Conversations were peppered with the names of men: there is a tendency to refer to the very senior civil servants by first name only, indicating an assumption of familiarity with noteworthy and significant people. (By contrast, political figures are typically referred to by their placeholder title: ‘the minister’, ‘the PM’, ‘the chancellor’.) This raises a question about the gendered nature of policymaking culture, and whether intelligence is performed here in gendered ways. The language certainly conveys an impression of some implicit notions of intelligence and skill, defined as individual and personal cleverness, quick-thinking, a facility with words and text, and the ability to mediate and navigate the vicissitudes of politics.

The following extract encapsulates several of these traits:

“The policy profession also needs to be brilliant at the stuff that Jeremy is brilliant at – being one step ahead of the ministers, always being trusted, a brilliant mind, knowing how to commission some quick advice, all the classic Whitehall stuff. That stuff is immensely valuable... And we would be absolutely sunk without the Chris Martin,

¹ ‘Whitehall’, as well as being the name of a road, is commonly used to refer to the community of central government departments clustered around Westminster and the Houses of Parliament in London.

² Civil servants’ seniority and position in the organisational hierarchy is denoted by numbered ‘grades’. It is not uncommon for civil servants to introduce themselves by stating their grade.

Jeremy Heywood* skills. Completely sunk. If the PM thought that Jeremy couldn't come up with the sorts of things that would give the Prime Minister the ability to stand up and say 'we'll crack immigration', then Jeremy loses his license to operate, and we all lose our license to operate."

*Chris Martin, Director General, Prime Minister's Office, and Sir Jeremy Heywood, Cabinet Secretary and Head of the Civil Service

Packed into this brief extract are references to talented men, thinking and acting decisively, manoeuvring in order to strategically position the civil service in relation to the politicians it serves. In other conversations, references to the format of 'ministerial submissions' highlights a set of established practices, and ways of managing relationships, when working between ministers/ Parliament and the civil service. Rather than anything so clear as a set of rules, this might be more accurately likened to a carefully choreographed scene constantly being played out – where those who are artful can make small innovations within an established form. And whilst interviewees were prepared to admit the limitations to traditional ways of making policy, and the need for change – there is also a strong sense of loyalty to this institutional culture. It is this context that design plays into and the confrontation reveals several challenges.

Concepts of knowledge and the performance of intelligence

In 'How Institutions Think' Mary Douglas (1986) sets out an argument for 'the sociological dependence of all cognition': within the social milieu of the civil service we can assume there might be some common epistemological bases. As it emerges in these interviews, intelligence appears to be understood as individual brilliance, as the capacity of one person's brain – as opposed to embodied, contextual, situated, or social intelligence. The complexities of policymaking are only for the brightest sparks:

"bad policymaking [...] I've seen a couple of examples in the department I'm about to go to – a submission which is (by) someone reasonably clever but not very clever"

The assumption here is that only if people are 'very' clever can they achieve the goal of good policymaking – the onus is very much on the capability of the individual. Knowledge is generated through description rather than acquaintance: for example, reviewing certain kinds of historical evidence or data, understanding the range of potential solutions that are acceptable, applying the analytical and critical capacities of an individual, or asking a known expert are all commonly accepted ways of generating knowledge; learning through action or testing or immersion in an environment or asking a non-expert are not. The following quote illustrates the rarity of the latter:

"And she said 'the thing is, we've been working on this for ages but we've never thought about what the experience of those who used our service was. We've never done that.' With that sense of 'my god, how come we never did this?!'"

The answer to that question, 'how come we never did this?', is presumably that asking people about their experience of a service simply isn't considered a relevant or useful thing to do, or a valid way of generating knowledge. And even when experts are involved, there

are still only certain kinds of information considered robust enough to constitute ‘evidence’. For instance, once quite senior researcher commented:

“I struggle to see how ethnography and observational research on its own could possibly capture the richness that’s out there in the data.”

Although design ethnography as a research method for informing policy is understood as helpful in that it reveals new insights, it is also problematic for policymakers in that it isn’t accepted as sufficiently representative, quantifiable, or reliable. The challenge for design in this context, then, is epistemological: of conflicting beliefs about how one might come to know things about the world, about what is considered a valid way of knowing. Designerly ways of knowing (Cross 2001), it seems, are rather different to policymaking ways of knowing.

Notions of skilled practice

Skilled practice in these interviews is characterised by accounts of manoeuvring and handling, of quashing ambiguity and providing certainty, rather than necessarily finding an appropriate solution to a problem.

“if there is an answer, we go for it. Because that’s the easiest thing to do. I could have presented a brilliant submission to a minister on inner city pregnancy, and had all the data to support it, and it might have been a great bit of work, and it’s quick and it’s neat – but it might have been entirely the wrong intervention.”

This extract highlights two issues: the speed at which policymakers are encouraged to produce solutions, and the fact that sound ideas on their own are rarely enough – or even required – in politics. It is a mistake to assume that design might get itself license to operate simply by generating great ideas that stand a chance of working. As we will go on to discuss, the factors that influence the adoption of an idea are rarely to do with the quality of the idea itself. Civil servants are on the lookout for “good ideas *we can land*”.

Problematically, some design methods implicitly ask civil servants to compromise (what they understand to be) their performance of professional competence:

“you have to be very careful when you say to a Minister ‘none of these things have worked before, we don’t really know exactly what to do now, and we’ll have to bring in other people to help us find a solution.’ Because as an official you want to be able to give options and show that you know what you’re doing. And actually being able to say ‘we’re in a space where there’s a lot of ambiguity, and we’re going to dwell in that ambiguity, and I want you to give me time to do that.’ That’s quite tricky.”

Relations between the civil service and politicians are subject to some rather complex power dynamics, which makes it very difficult for either party to admit that they don’t know what to do. The need to provide clarity and certainty, which is driven by the dynamics of politics, does not create an environment conducive to working in a designerly fashion, where one can “sit back and think in a more reflective way”, or “probe-sense-respond”. In this way design as a tool in the policymaker’s toolbox suffers the same fate as any other kind of evidence-generating activity:

“The generation of ideas on the back of the data? Well, as generally speaking we don’t surround ourselves with data, I imagine that skill must be lacking.”

Aesthetic disruption

As demonstrated by Gagliardi (1999), all organisations have an aesthetic, a set of ways the institution manifests itself to the senses. For the departments of government, and policymakers, the dominant aesthetic is closely tied to words and text: the circulation of pieces of paper with words written on them, the act of sitting around in meetings with words on paper on the table, the writing of ministerial submissions in a predefined format. In contrast design operates in a less text-dependent way.

“(what) I found very interesting was the graphic, visual side of it, which is not civil service at all. I personally still operate by writing essays. It’s about the only job under the sun that writing A Level essays is actually useful for.”

Words are clearly felt to be reassuring evidence of analytical work having been done, of deep knowledge, and the passing and filtering of knowledge through text denotes a person’s place in the hierarchy and was clearly the general expectation:

“After this I’m going to a meeting to discuss some thorny issues, and we tackle it by producing a load of paper with tabs and words. That’s what I’d expect for most policy meetings that I attend.”

The same interviewee joked that “you know you’ve made it when your team makes you such a beautifully tabbed briefing”. Knowledge is managed through the production, ordering and reordering of text, and the more senior you are, the more stages of filtering and ordering have happened before a text reaches your desk.

The staging of meetings themselves reproduces hierarchies and particular ways of performing cleverness – such as the ability to (appear to) assimilate information rapidly, and be decisive:

“That forum creates the mentality that you have to be quite focused and narrow-minded. There’s a long agenda and you’ve got to get to action points.”

One interviewee gave an account of a meeting where she had a very brief opportunity to make the case for a particular course of action to her seniors – not enough time in her view to be able to communicate sufficient information – and a questionable (in her view) decision was subsequently made. The format and structure of the meeting dictated the nature of the policy decision, rather than the other way around.

Although ‘design thinking’ has been accused of downplaying the importance of aesthetic judgment in the designers’ skillset (Tonkinwise 2011, Brassett 2015), aesthetic disruption is a leading feature of these interactions with design. Design presents the challenge that there might be other ways of learning, negotiating and collaborating, unrelated to the production of texts. And by changing the physical and aesthetic configuration of people in relation to each other, and in relation to a common problem, it introduces a different social dynamic. This is both its potential to generate different kinds of knowledge, different ideas, and to

reconfigure relationships to become more productive. But so clearly challenging some established forms also puts it at risk of being rejected. This is compounded by the apparent superficiality, or non-seriousness, of some of its aesthetic modes:

“I’ll need to manage the situation quite carefully, to make sure they go ‘slowly slowly catchy monkey’ on them. Don’t bring out the cartoons and lego straight away.”

People whose work lives revolve around highly ordered meetings and texts, the need to appear quickly decisive, and to manage some incredibly challenging issues, can unsurprisingly see the ‘playfulness’ that design methods introduce as inappropriate.

The rhythms of politics

There are two further ways that bringing design into policymaking seems to be at odds with the forms of politics. The first is a timing issue – senior civil servants often have to react very quickly to changing situations, a mode of working that has led to a set of formulaic practices and patterns. Opening that up is often not welcome:

“When there’s a crisis, the immediate focus is on producing some advice, a handling plan, some legal analysis. You immediately go into product mode. It’s hard to step back and think ‘what are the different ways of addressing this? Is there another route we could be pursuing?’ Because the machine needs to be fed and the machine likes linear things.”

Second, is the more fundamental issue of democratic accountability. There are two aspects to this. Current practices exist within what is understood to be a legitimate political decision-making process (however flawed in reality), where a course of action is negotiated and decided through the enacting of politics in a more or less public arena. The behaviour and work of departments under ministers mirrors that playing out of priorities and decision-making; difficult conversations which can’t necessarily be effaced:

“The Policy Lab guys [...] (are) assuming that everybody is willing to participate in a collaborative creative process, whereas actually, with inter-departmental working that’s often not the case. People sit there, and say nothing, and lock the conversation down [...] At the end of the day it stems from - what a lot of people would say are - healthy disagreements between ministers. And their strategic thinking about the direction of policy.”

The perceived advantages of some design methods include engendering collaborative working – but in an agonistic relationship such as that which exists between departments and ministers who have differing views about the nature of, and appropriate response to, a problem, collaboration is not necessarily what either party is seeking to achieve. Design here needs a better account of what role it might play in mediating, rather than glossing over, political opposition.

Finally, it is evidently difficult for civil servants to tell an elected official that their problem definition and solution are ‘wrong’, particularly when those characterisations of a problem may well have been part of a party’s manifesto promise. ‘User research’ and ‘prototyping’ of new policies risk short-circuiting the traditional decision-making structure by circumventing

the political arena. The most design can hope to do here is better ‘inform a discussion with ministers’:

“We’re all about evidence-based policymaking. However the reality is sometimes it’s policy-based evidence making. You’ve got to be mindful that there is a predefined solution. And you are there to make it happen.”

Most of the interviewees were clear that design – rather than promising ‘magic wand’ solutions – needs to mind its place in the hierarchy.

Designing in an unavoidably political context

The design practices Policy Lab is introducing are fundamentally challenging some existing notions of intelligence and knowledge (by positioning them as situated, embodied, social, contingent, experiential, etc), and the accepted ways of performing intelligence - and they are partly doing that by aesthetic means. They are also at odds at times with the demands and expectations of a ‘political’ institution. So notwithstanding the ability of these designerly methods to generate new understandings of problems, and new solution possibilities (Kimbell 2015), there are cultural and epistemological factors at play which will determine the extent to which these things are mobilised.

As Table 2 showed, the subject matter of the (social) policy challenges discussed in this research lands them squarely in reach of a governmentality critique (Foucault 1991, Miller and Rose 1988): the majority of these projects are concerned one way or another with the manipulation of behaviours, the deployment of ‘the subject’s capacity for action’ (McKee, 2009). Personal responsibility and the capacities of individuals are being mobilised (through designerly practices) to achieve the goals that government seeks. A critical perspective also allows us to see trends such as depoliticisation (Flinders 2014), libertarian paternalism (Jones et al 2010), and particular economic narratives (Wren-Lewis 2015) playing out through policy conversations and the development of new types of intervention. The ends of government, as is clear from the interviews, are currently strongly tied to an austerity narrative; saving money and resources, and achieving greater efficiencies:

“Even if we did it better, and were more democratically accountable, and the solution was much more acceptable to the British public – that’s not really quantifiable.”

It is arguable that the pressure to be accountable and frugal in the distribution of public money eclipses the wellbeing of citizens as a driving agenda – it is for this purpose rather than his or her own welfare that ‘the user’ is targeted as a focus of research. And so it is clearly possible to read design as being exploited (as so often) by a system, subordinated to its political aims (Dilnot 2014).

However one could make such critiques of any and all social policy tools in a neoliberal democracy (Swyngedouw 2005). And there are limits to a governmentality-led critique. In this case perhaps we could give more credit to the agency and motives of the practitioners in question, who (by the evidence of these interviews) are perfectly aware of the ethical difficulties of their terrain:

“Policy is a big word that covers a lot of things, the centre ground is in making difficult – sometimes impossible – trade-offs between multiple competing aims, with limited resources, in a political context.”

Our interest here is whether there are ethical or political questions for design (and designers) that are somehow different to the questions any reflective policy practitioners might ask themselves. If we accept the ‘silent, ordinary, fully routinised’ apolitical institutions of the civil service are, in fact, where politics and governmentality is daily enacted (Latour 2007, Stone 1988), do we expect more criticality of design than any other discipline? Does design, with its capacities to expedite solutions, to make new things knowable and therefore governable, have a special responsibility? At the very least, we cannot possibly continue to see design as a ‘neutral’ or value-free set of practices. The very act of defining a user involves political reasoning (Stone 1988, Wilkie and Michael 2009), and the notion of the singular ‘user’ itself belies a conception of ‘the social’ that (for example) presumes the existence of individual autonomy, and privileges the individual over the community. Along with other practitioner-academics, we are interested in the question of design’s ethical and critical preparedness for intervening in social and political contexts:

“The deployment of Design Thinking in social issue domains such as poverty, health, and education, is increasingly widespread. There is an urgency for Design Studies to be critically evaluating these projects and showing strong leadership in terms of recommending certain approaches and resisting others.” (Tonkinwise 2014)

Conclusion

Policy Lab’s work in the Whitehall policymaking and civil servant community is design tailored to a specific context. Whilst the team members are a mix of experienced designers and civil servants, the lab itself is only 2 years old,¹ and continually developing its practices. Other studies of Policy Lab previously mentioned (Kimbell 2015, BOP Consulting) have focused on evaluation for improvement and efficacy. This account is intended to be more reflective and critical about what it is that introducing design problematises in the institution of government. We are currently planning further studies that take a similar approach in comparable contexts (in Scotland, for example). Looking across a number of design-in-policy practices, and looking more closely at the content of specific policy problems, should lend itself to further exploration of these evolving design practices through a governmentality lens, deepening understanding of how design is being mobilised in strategies of governance.

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Problematizing Evidence-Based Design: A Case Study of Designing for Services in the Finnish Government

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Abstract: The increasing complexity of design problems and degree of innovation required of design solutions today has led many authors to claim that decision making in design should be based on strong scientific evidence. However, current models of evidence-based practice are too simplistic for design since they tend to focus only on evidence strength. We investigate the role of evidence in service design through analysing a case study of creating a service design solution to improve immigration services in the Finnish public sector. By using a conceptual framework that emphasises the impact of different kinds of evidence on knowledge as justified true belief, we illustrate some of the different roles that evidence can play within the design process. The insights from the study indicate that relevant evidence is more useful than strong evidence during the early phases of the design process.

Keywords: evidence-based design, service design, design for public sector, epistemology

Introduction

Increasingly design is being used to address issues framed as requiring systemic change such as transitioning to a more sustainable and healthy society (Boyer, Cook, & Steinberg, 2011; Norman & Stappers, 2016). According to this perspective, the technical nature and complexity of these issues requires that decision-making in design should be based on strong scientific evidence (Norman, 2010). However, despite the power of this simple notion, the process of using evidence within design practice as well as the concept the evidence itself is not entirely clear within the design literature. Consequently we claim that better understanding of the role of evidence in design practice is needed. In this paper we address this claim by investigating evidence and its role in a designing for services project within the Finnish public sector. An insight from the case study suggests that, in the early stage of this service design project, evidence justifying the *relevance* the design concept to its particular



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context played an important role, not only evidence of the *strength* of the proposed solution. This insight problematizes current models of evidence-based practice that claim that only strong evidence can provide good reasons for design decisions.

Evidence-Based Practice and Design

Many different fields have proponents of evidence-based practice, for example medicine (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996; Straus, Richardson, Glasziou, & Haynes, 2005), policy (Cartwright, 2009, 2012; Pawson, 2002), education (Pring & Thomas, 2004), and information management (Booth & Brice, 2004). And more and more articles are being published in the design domain that claim to follow or advocate for evidence-based practice approaches. The term evidence-based design has been coined; apparently to distinguish one type of design approach from another, and the term has been used in several different design fields, for example office architecture (Sailer, Budgen, Lonsdale, Turner, & Penn, 2008), urban design (Nisha & Nelson, 2012) healthcare environment design (Codinhoto, 2013; Lawson, 2010, 2013; Ulrich et al., 2008) and surgical information system design (Jalote-Parmar & Badke-Schaub, 2008). However, it seems that the term evidence-based design is not yet a mature concept since it has been used to refer to relatively dissimilar things. For example, Daly (2012) maintains evidence-based design is an existential category that describes how some designers experience their professional design practice. Howard and Somerville (2014) report that they used evidence-based design as a theoretical framework for a project for repurposing library facilities in an Australian university. Miller and Rudnick, (2012; 2014) use the term evidence-based design to describe a process model for working with evidence in the design of programmes for assisting ex-combatants to reintegrate into society. That evidence-based design is used to describe an existential category, a theoretical framework, and a method, indicates that better understanding of the concept is still needed.

Evidence-based practice approaches share the position that decisions should be based on the current best evidence (Straus et al., 2005, pp. 280-281). In principle it makes sense that when faced with having to make trade-offs between different options such as choosing between two heart disease drugs with different side effects, or choosing between two different grades of steel with different mechanical properties, then practitioners should use the most up to date evidence to support their decision making. However, what is most notable in the evidence-based practice approach is the specific model that justifies the kind of evidence that a practitioner is entitled to use to make a decision.

Various models of evidence hierarchy have been developed including Nesta's (Breckon & Nesta, 2016, p. 33) Standards of Evidence framework for evidence-based policy, and the work in healthcare decision making by the Grading of Recommendations Assessment, Development and Evaluation (GRADE) Working Group. However, the theory of evidence-based practice has also been subject to various criticisms (Cartwright, 2009; Clarke, Gillies,

Illari, Russo, & Williamson, 2014; Tonelli, 2011). In general, evidence-based practice approaches draw on the hierarchical model of evidence (Figure 1) developed by the evidence-based medicine (EBM) movement (Howick, 2011; Straus et al., 2005). The simplified version of the hierarchical model of evidence starts at the lowest level, with (1) expertise and mechanistic reasoning, then rises through (2) observational studies, to reach the 'gold standard' of evidence in (3) randomized controlled trials (RCTs). Furthermore, systematic reviews of many RCTs or observational studies are considered stronger than single studies, and comparative studies being stronger than individual case studies. The categories of evidence are based on their freedom from confounding factors, and according to the EBM model, only evidence from RCTs can provide a practitioner with strong reasons for a decision, in contrast observational evidence and professional expertise can only ever provide weak reasons for a decision. The degree to which a clinician is justified in believing that a particular drug will treat their patient's illness depends on the kind of evidence they can access and understand. Accordingly, the EBM hierarchical model of evidence was developed primarily to guide clinicians to interpret and evaluate the validity, impact, and applicability of results of studies published in medical journals (Straus et al., 2005, pp. 3-4).

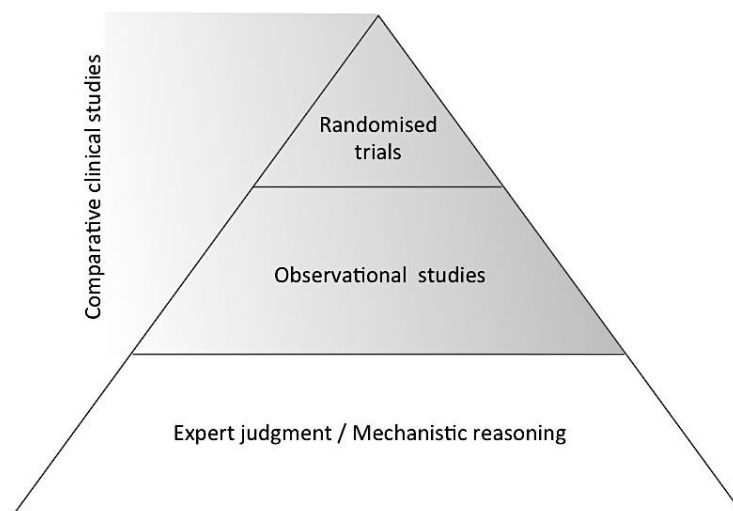


Figure 1: Simplified EBM hierarchical model of evidence (Howick, 2011)

However, while clinical and designerly practices share aspects that may warrant both professions being deemed 'sciences of the artificial', as Herbert Simon (1996) put it, there are important differences too. For example, designers are often engaged to invent things or to create new products and services, while clinicians do not often invent the drugs or treatments they prescribe. Of course the process of invention may also utilise evidence, since a designer does not create a new product from blank slate, and similarly a biomedical scientist or chemical engineer does not invent a new drug without knowledge of prior art. But the kinds of evidence that a designer is entitled to use in inventing something new, should not necessarily be governed to the model of evidence developed by the evidence-

based medicine movement to guide clinicians to appraise results published in medical journals. While we agree that designing should be based on the current best evidence, we believe that further interrogation of the role that different evidence kinds play in design practice is needed. In the next section we draw on Codinhoto's (2013) work to clarify the philosophical understanding of evidence and to examine the relationship between evidence and knowledge.

Evidence and Knowledge

In section two we introduced the idea that evidence affects the degree to which a practitioner is justified in believing that the conjectured success of a course of action may be true. This close connection between evidence and justification is central to the analysis of knowledge in epistemology, for as Kelly (2014) states "evidence is the kind of thing which can make a difference to what one is justified in believing" (, para. 6). The objective of the analysis of knowledge in epistemology is to state the conditions that are individually necessary and jointly sufficient for propositional knowledge. While the attempt to analyse knowledge has received a considerable amount of attention from epistemologists, no analysis has been widely accepted (Ichikawa & Steup, 2014). That being the case, according to the prevailing tripartite analysis, *S* knows that *p* iff

- 32) *p* is true;
- 33) *S* believes that *p*;
- 34) *S* is justified in believing that *p*.

According to Steup (2014) knowledge requires these three conditions since,

"False propositions cannot be known. Therefore, knowledge requires truth. A proposition *S* doesn't even believe can't be a proposition that *S* knows. Therefore, knowledge requires belief. Finally, *S*'s being correct in believing that *p* might merely be a matter of luck. Therefore, knowledge requires... justification. Thus... *S* knows that *p* if and only if *p* is true and *S* is justified in believing that *p*." (para. 3)

The analysis of knowledge as having the conditions of justified true belief (JTB) is the subject of significant debate in epistemology, and has been critiqued by Gettier to be insufficient, however, JTB does represent the current state-of-the-art, and so for the purposes of this article we will take JTB to be acceptable.

Of the three conditions of knowledge, the truth condition is largely uncontroversial. For example, it is false that Donald Schön is the author of *The Sciences of the Artificial*, and since it is false it is not something that anybody knows. Similarly, the belief condition, while slightly more controversial than the truth condition, is certainly accepted by orthodox epistemologists (Ichikawa & Steup, 2014). However there is considerable disagreement concerning the justification condition, since justification concerns the proper sources of knowledge or the appropriate way that knowledge is formed. For example, since empiricists, rationalists, and phenomenologists all maintain differing ontological positions, then they all

adopt differing views concerning the proper process to acquire knowledge, for example, whether through observation, intuition/deduction, or interpretation.

Following Codinhoto (2013, p. 82), we can say that there are three ways that evidence can make a difference to knowledge as justified true belief. First evidence makes a difference to knowledge when it is relevant to the formation or context in which justification is required. Second, evidence can influence the strength of the explanatory relationship between evidence and the truth of a hypothesis. Third, evidence can affect our confidence in our beliefs according to the reliability and rigour of the research process through which the evidence is gathered. So we can say that evidence makes a difference to justification in terms of relevance, truth in terms of strength, and belief in terms of confidence.

In our discussion of evidence-based medicine in section two we introduced the idea that evidence comes in different kinds. And from the preceding epistemological analysis we can now see that evidence is the sort of thing which can make a difference to knowledge, and so we must now broaden our understanding of evidence to include not only empirical evidence of the kind suggested by medical science, but other kinds of evidence such as proofs that support argumentation. This broadening of the understanding of evidence is important since current design research claims that, for example, designers commonly use argumentative proofs such as reasoning from analogy (Ball & Christensen, 2009) or synecdoche (Sevaldson, 2011) in their design work. Consequently, we need a new model of evidence in design that can cover both empirical evidence and argumentative evidence, and their interaction with knowledge.

The first category of evidence to include in the new model is empirical evidence. Following Achinstein (2001), we can discern three types of empirical evidence: potential, veridical, and epistemic situational. Potential evidence gives direction to truth but on its own is not conclusive. For example, high blood pressure is a common symptom to many illnesses but on its own it is not conclusive in defining whether the person is ill or not or what illness they have. Veridical evidence is evidence that is certainly true since it gives objectively good reasons for believing what it is evidence for and that bears an explanatory connection to what it justifies with high probability. Veridical evidence is the sort of evidence that is the goal of scientific investigation. The epistemic-situational kind of evidence is evidence that provides someone with good reason to believe something, relative to what anyone could be expected to know given a particular context. Epistemic-situational evidence is “fallibilist” since it justifies one in believing a hypothesis, given everything one knows, even if the hypothesis is false (Achinstein, 2001, p. 21).

The second category of evidence to include in the new model is the kind of evidence that supports reasoned argumentation. Codinhoto (2013, pp. 68-69), following Rieke and Sillars (1984, pp. 91-96), proposes that examples, illustrations, and expert testimony are instances of *anecdotal empiricist evidence* that are used within reasoned argumentation. We agree with the kinds of evidence that Codinhoto’s (2013) includes here, however, we believe that this category of *anecdotal empiricist evidence* needs to be further expanded to include argumentative evidence that concerns the dialectical and rhetorical proofs characteristic of

contemporary design practice as found for example within the research programmes of the argumentative model of design (Buchanan, 2001, 2015; Feast, 2012, 2015) or frame innovation and reflective practice (Dorst, 2015; Schön, 1983). Codinhoto (2013, pp. 80-82) combines the different kinds of evidence with the different conditions of knowledge, to construct a model for assessing evidence in a knowledge system. We present an adapted version of Codinhoto's model in Figure 2.

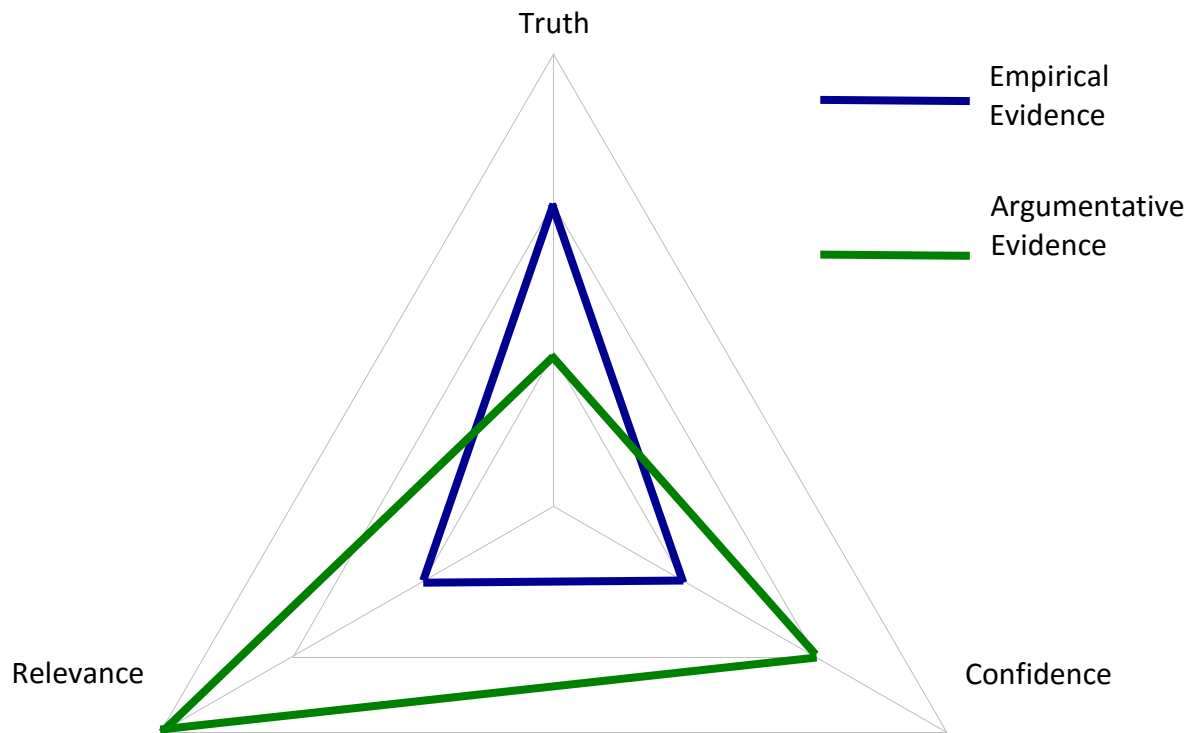


Figure 2: Model of an evidence-knowledge system, adapted from Codinhoto (2013), values are indicative only.

As we noted in the introduction, evidence-based design is not yet a fully mature concept and what evidence is and what role it plays is not yet clear. The model of evidence-knowledge system presented in figure 2 aims to address the relationship between evidence and knowledge in a more sophisticated way than is currently presented in the design literature. To illustrate the how the model can be applied to appraise the role of evidence in design, we apply this model to a case study of service design in the public sector. The case study concerns the development of a web based tool to visualise immigrant customer service journeys in Finland. As will be explained in greater detail later in the discussion section of this paper we found that:

- The focus of evidence used in the early stage of this development primarily concerns justifying the relevance of the design concept to the context. Furthermore, we found that the kind of evidence used was the argumentative kind rather than empirical.

- Argumentative evidence was used to support confidence in the belief that the co-design process was reliable.
- Empirical evidence that validates the truth of the tool was not yet used to a significant degree at this stage of the design process.

In the next section we clarify the background to the case, explain the conceptual framework that informs the design process, identify the methods used to collect data, and describe the tools used to generate the drivers of the design solution. This particular case was selected because experienced designers working within the field of their expertise facilitated the work and since the project represents the current state of the art of service design approaches. After describing the case we discuss the role of evidence in the design process, we present conclusions and indicate the possible avenues for further research.

Case Study: Service Design in the Finnish Public Sector

Collaboration between designers and public sector organisations is growing in Finland. In 2012 the Helsinki World Design Capital, the City of Helsinki employed three designers as part of an initiative to improve the maintenance and management of various public services. Since this initiative, the number of projects that have utilised designers in public sector innovation has grown, however, the use of service design in Finnish public sector is still quite new. Furthermore, even though service design is quickly becoming a popular buzzword used by many companies and public organisations, there is still significant confusion of what service design means and what it actually entails. This case study reports on a project aiming to bring service design into collaboration with government that grew out of these early initiatives. The project started from a series of small-scale interviews and workshops investigating customer service journeys of immigrants coming to Finland. However, with the recent European Migrant Crisis of 2015, the sudden increase of refugees coming to Finland has highlighted the need to redesign the current immigration system. Consequently, the initial project was quickly scaled up to cope with the new pressure on the system. This pressure led to the initiation of the larger TEM Customer Web Visualisation Tool (TEMWISIT) joint project between the newly created Centre of Expertise on Immigrant Integration, Ministry of Employment and the Economy, and the Aalto University Department of Design. This project is characterised by significant uncertainty due to using the new approach of service design in government, the wickedness of the problem due to the current controversy surrounding immigration, and the fragmentation of services across the various different immigration service providers.



Figure 3: Finnish Immigration and Integration Service Providers

Historically, Nordic countries established their governmental immigrant systems according to immigration trends in the 1990s and in strong relation to welfare state system (Yousfi, Vilkkama, & Vaattovaara, 2010); however, due to the current situation these systems are incapable to respond to increasing immigrant crises that brought more people than expected in a short period of time. The Finnish immigrant system is organised in silos that lead the procedures and make the decisions. The current models of public services are characterised by asymmetrical power relationships between the customer and service provider who has knowledge and administrative resources and therefore control of services. This way the service provider remains in a superior position towards customer who acts as a receiver of service provider actions; in this arrangement service actions flow from the organisation towards the customer and not the other way (Deserti & Rizzo, 2014). Currently an immigrant who enters to Finland has to deal with the complex system of entry services delivered via five different ministries and its service bodies alongside the other independent institutions as illustrated in Figure 3.

Each institution operates with different legislations, policies, and actions. Individual immigrant journeys span across different ministerial responsibilities, organisational boundaries, and channels, which often cause inefficiencies and break downs in communication, coordination, and information sharing (Hyvärinen & Sustar, 2014). In this situation, people in vulnerable positions such as immigrants cannot choose between different services. The TEMWISIT project focuses on the design of a web based tool to be used by various public-sector immigration service providers to visualise the different service journeys that immigrants experience (1) before coming to Finland, (2) through the immigration stage, and (3) then through integration.

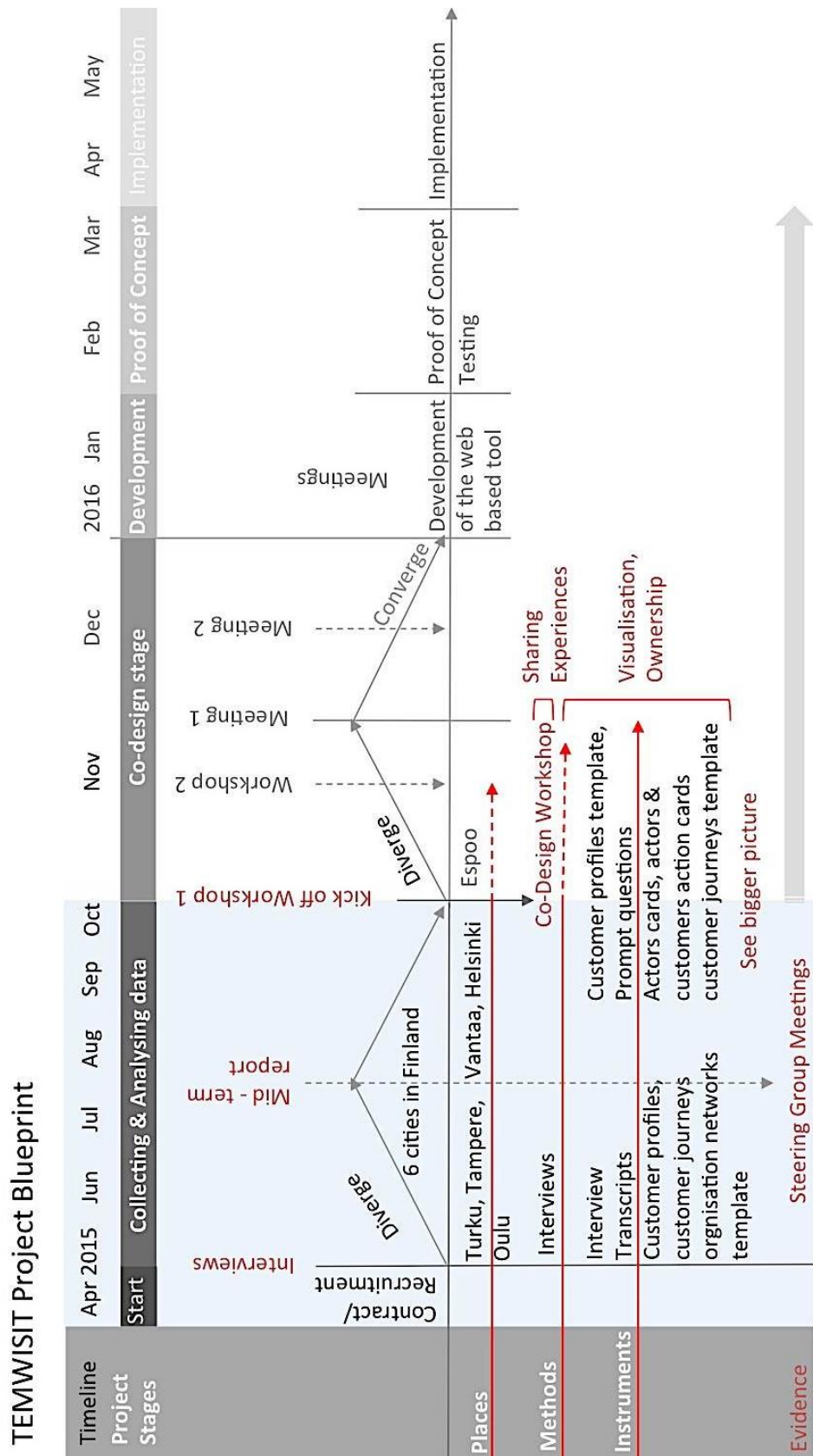


Figure 4: TEMWISIT Project Blueprint

Conceptual Framework

The TEMWISIT project is situated within the human centred design conceptual framework rather than drawing on existing evidence-based design models. The designers' approach draws on principles from participatory design (Simonsen & Robertson, 2012), empathic design (Koskinen, Battarbee, & Mattelmäki, 2003), and co-design (Sanders & Stappers, 2008), to support policymakers to develop shared understanding, integrate users' real-life experiences, trigger new ideas, and visualise future design solutions (Salgado, et al. 2016). The key principles that drive this approach are the political belief that the people affected by design must be able to influence the design process, and the pragmatic belief that involving users in the design process will decrease the chance that something important will be overlooked (Rittel, 1984). By using techniques such as co-design workshops, mock-ups, prototypes, scenarios, and design games, the designers can develop solutions that are grounded in a specific context by supporting the stakeholders to cross institutional and disciplinary boundaries and learn from each other (Manzini & Rizzo, 2011).

Work on the project commenced in April 2015 and it will be completed in March 2016. The project has the following five stages (Figure 4):

- 35) Interviews with key stakeholders in the six biggest cities in Finland: Helsinki, Tampere, Vantaa, Espoo, Oulu and Turku
- 36) Co-design workshops, first to develop customer profiles, customer journeys, and identify the broad values and features of the tool; then second, to identify use contexts and user needs to refine specific web based tool features, functions, and characteristics. In addition, this stage incorporates several meetings with the stakeholders to identify the most valuable design opportunities.
- 37) An iterative development stage to develop the minimum viable web based tool solution.
- 38) Proof of concept stage that will test the web based tool interactive prototype in real life situations with immigrant services providers' organisations, end-users and domain experts.
- 39) Implementation of the final product by an outside IT Company.

Since the project is currently on going, this paper focuses on the methods and tools used in stage 1 and 2 (Figure 4).

Methods and Tools

By the end of October 2015 the researcher had completed 39 semi-structured interviews with respondents from the various immigration service providers, including those who provide information to the immigrant customer, the front-end employees who serve immigrant customer at the encounter, the back-end employees who are making decisions, and managerial level employees.

The interviews lasted between one hour and one and half hours and were conducted at the participants' offices. The participants were sent an information sheet, consent form, and interview schedule in advance. Before the interview the researcher explained project's aim,

the interview procedure, use of recorded data, so each participant could give informed consent to participate. To date, interviews have been conducted with service providers including the registration office, regional development office responsible for immigrant language courses among others, employees working at the citizens information points, police, employment office, city central administration, social services, taxation office, Finnish national healthcare service, and the Finnish consulates abroad. The interviews questions were structured concerning five themes: (1) General information concerning the respondent's occupation, job description and their relation to immigrants; (2) Immigrant Customers; (3) The respondent's understanding of their customers' service journey and touch points; (4) the nature of the inter-organisational collaboration between different immigrant service providers; and (5) other issues concerning the respondent's wishes, aspirations for the future immigrant services, and so on.

A purposive sample of 20 participants was recruited for the first co-design workshop, including end users as well as various immigration service providers. The workshop participants included a managerial advocate (n=1), immigration project coordinators (n=8), service information providers (n=2), decision makers (n=4), and end-user immigrants (n=5) who are or were using immigration and integration services. The workshop took 3 hours and the participants were divided into 5 groups, with a facilitator supporting each group. In addition, one person documented the workshop process and artefacts that the participants created. The purpose of the first workshop was to spread the word about the project and build project ownership at the different participating organisations. The workshop tasks and tools were built on insights gathered from the interview stage. The first co-design workshop generated insights about the range of customer profiles, their actions in the complex customer service journey, and potential values and features of the web based tool. The second workshop will concentrate more directly on identifying the context of the web based tool use, values of the context and solutions, and concretising the web based tool's features, functions, and characteristics.

During the interviews and workshops various tools were used to support the co-design process. In addition to the interview questions, participants completed three tasks. The first task was to select the most common immigrant customer profile using coloured circles presenting identified different customer profiles. Participants had a possibility to group them based on the number of the certain types of cases that they have to deal with or any other way. The selected profile by the interviewee was then used in the second task to visualise the customer service journey of this customer profile. The aim of this task was to investigate the participant's knowledge of the scope of the customer service journey (Figure 5). The third task was for the participants to visualise the connections that their organisation had with the policymakers, service providers, and immigrant associations. This visualisation was used to discuss future improvements of the immigrant service system in Finland.

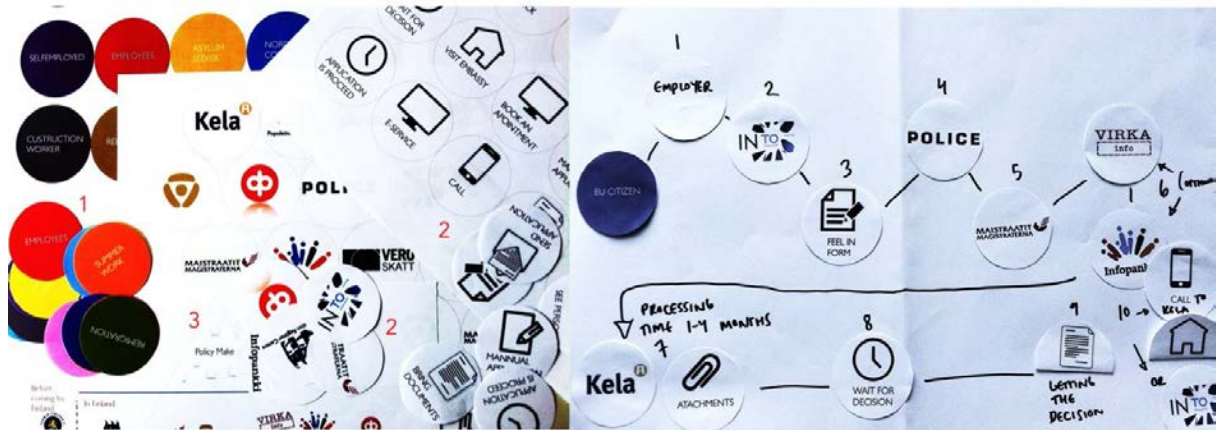


Figure 5: Different visual material that participants used to work on their tasks (left) and one completed customer service journey (right).

Similar methods and tasks were used during the co-design workshop as at the interview. Like the interview respondents, the workshop participants completed the three tasks concerning customer profiles, customer journeys, and tool values and features, however these tasks were conducted in a group format to stimulate discussion and surface assumptions. During the first task, customer profiles cards were used to identify different types of immigrants coming to Finland, the participants were then asked to answer the prompt “What would those customer profiles appreciate in the service delivery?” and “What kind of worries and dreams those customer profiles have?”. These prompts were intended to bring out a more human side of the end users for the participants. At the end of this task participants were asked to select the most complex case, which was then used in the second task (Figure 6).

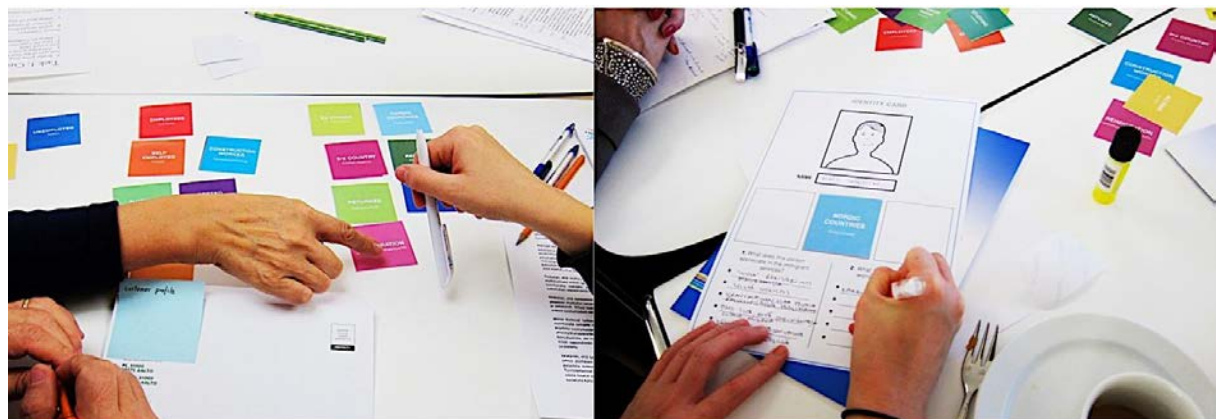


Figure 6: Participants selecting different customer profiles cards (left); creation of customer profile (right).

In the second task, the participants were given a customer service journey template, actor cards, actors and end users actions cards, and were asked to identify and discuss the challenging points on the customer journey (Figure 7). The participants were prompted to answer “What happens at the specific action?” and “What is wrong at this specific action?”. Then the participants were asked to mark in action cards where the help provided by the

web based tool would be needed the most. The third task involved facilitated discussion concerning specific aspects such as “*What benefit/value the solution could give?*” and “*What kind of solution/features/functions could make this happen?*”. Finally, the participants marked the tool’s most important values and solutions. The workshop concluded with a discussion of the most important findings of the session.



Figure 7: Customer service journey (left) and users actions cards (right) for mapping out end users and service providers’ current actions.

The methods were used to make words and discussions more concrete, and to serve as a basis for conversation around certain problems or issues. The actor cards and the action cards were used to make the entire customer journey more systematic and provide an opportunity for everyone to identify and discuss problematic points on that journey (Figure 7 right). These methods also help to familiarise potential users with tool’s possible content and their interaction with it.

Discussion

In this section we describe the analysis of the case focussing on how evidence was used in the service design process to develop the web based tool. Our analysis identified four episodes through which evidence supported the design work: (1) bringing stakeholders together, (2) creating ownership, (3) supporting sharing experiences, and (4) understanding the current system.

With regard to the first episode, we disclosed that the co-design approach in public services has the power to bring people together through group meetings and workshops. From the beginning the group was established to bring together managing representatives of all immigrant service provider organisations. This group’s aim was to direct the project and to support all other project activities, such as recruiting stakeholders and front and back employees to attend the interviews, and employing appropriate representatives and personnel for the co-design workshops and development meetings. Although all the participants were essential to the existing service, some of them only met each other face-to-face for the first time at these meetings and workshops. Moreover, the co-design workshops not only generated design concepts, but in addition the participants used this

opportunity to network and discuss their work issues. One steering group member commented on this issue with the following words [...]“this project has added-value in bringing different stakeholders together.” Furthermore, the workshops were a pleasant opportunity for front workers to meet with immigrants. Bringing stakeholders together allowed them to share argumentative evidence about their particular contexts, which builds knowledge that supports the *relevance* of the tool to the users’ and stakeholders’ needs.

Second, the co-design approach builds ownership of the design concept within the stakeholder’s group, which is very important to sustain through the implementation stage since a separate vendor will deliver it. The co-design approach provides the opportunity for people to let out their frustrations and emotions related to the existing immigration service system without any judgment, identify people’s hindrances as an opportunity to create better solutions, and contribute ideas about what is valuable and important. By maintaining participation throughout the entire co-design process people feel deep connection with the project since they were engaged in it, a managerial advocate stated that they felt proud of what they achieved together with designers, and consequently they develop a sense of agency. Because the participants believe in the design process, they feel more ownership, which supports the group to feel design process is reliable. This exchange of *testimony* within the group indicates that this form of evidence use makes a difference to the group’s *confidence* in the design process.

Third, the co-design process supported participants to express and share their experiences through conversation with people with different backgrounds and roles, for example, civil servants and end users. Throughout the interviews civil servants has opportunity first, to reflect on their work history and share with researcher their positive and less positive experiences. Furthermore, the co-design approach is capable to establish a safe and comfortable environment that supports the participants to express and share their experiences. To support this comfortable environment, the interviews were done at the civil servants’ office and the workshops were held in an informal space with a lounge. In addition, visualizations, such as customer profiles and action cards, were used in the interviews and workshops to act as mediators to support participants to express and share their experiences. These visualisations were also used redirecting the focus of the conversation when potential for conflict arose, by stimulating participants to reflect and discuss a specific issue. Like the first episode, sharing experiences provides argumentative evidence that supports the *relevance* of the design to the needs of the users and their particular context.

The fourth mode of evidence and knowledge integration of the co-design approach is to make the system more concrete and tangible so the participants can grasp the bigger picture of the system more easily. This is important since the current immigration system spans across several service providers. Visualising the service networks and customer service journeys and by including actor and end users actions allows participants to manipulate the separate parts in a simple and controllable way. Furthermore, by using customer profiles and actors’ action cards, these people could tell their personal stories about how the system is used currently with more detail, and so more easily identify what obstacles need to be

addressed to make improvements. In addition, understanding the bigger picture supports some of the participants to envision the future, since it enables the people to reflect on their current situation and to express what could be done differently by showing various relationships of parts to wholes, for example, proximity, hierarchy, complexity, quantity, missing parts, sequence of stages over time, and actions. This episode uses argumentative evidence in a synecdochical manner to support the *relevance* of the tool to the context.

To summarise, through our analysis of the case study using the modified version of the conceptual framework developed by Codinhoto (2013), we found, (1) with regard to the JTB criteria that relevance was most important, then confidence, and then strength, and (2) argumentative types evidence in the form of testimony, examples, and rhetorical proofs were utilised. Truth was not yet as important at this stage, however, it is anticipated that truth will be more critical during the future validation of concept stage of the project.

We maintain that the insights generated throughout the analysis of the case are plausible since the project is dealing with the early stages of the design process and so we should expect that the focus of the design work be on the justifying the problem definition rather than validating a particular solution. Furthermore, the insights generated by the using the conceptual framework in our analysis of a service design project are similar to those generated by Codinhoto (2013, p. 203) in the early stage of a healthcare design project. This form of data triangulation lends support to the reliability of conceptual framework.

Conclusion

In this paper we have addressed the need for better understanding of the nature and use of evidence in design practice by analysing a service design project. If we were to analyse the case study using a hierarchical model of evidence strength, such as that promoted by the evidence-based medicine movement, then we must conclude that the work of the designers did not provide strong reasons for any of their design decisions, since the designers did not base their decisions on empirical evidence from comparative observational studies or RTCs. Instead, we found that at the early stage of this project, the designers used argumentative evidence that aimed to support the relevance of the design proposals to the issue context. This conclusion problematizes the concept of evidence-based design and questions its usefulness in professional design practice.

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Designed Engagement

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Abstract: Designed Engagement uses design methods and skills to transform the way we talk to people in the community. We go to where people are: designing positive and thought provoking public engagement to stimulate creative dialogue and explore new ways of addressing societal challenges. Involving the public in dialogue around changes to policy and the design of services is a key target for policy makers, however traditional approaches offer little scope for creativity and meaningful engagement. Design brings a wealth of expertise to create engaging experiences, facilitate dialogue, and translate insights into tangible outputs for decision makers. We discuss public engagement literature and previous examples of design within this context. We introduce 'Designed Engagement' to denote design-led approaches to public engagement, illustrated through two examples of pop-up Designed Engagement. We discuss advantages, limitations and implications for design, concluding with the need for further research to evaluate and demonstrate the contribution and value of design in public engagement.

Keywords: participatory; engagement; dialogue; asset-based

Introduction

Politicians and policy makers are placing a growing importance on involving the public in decisions which have an impact on their wellbeing and livelihood, both in terms of informing changes to policy and designing services to meet their needs (Scottish Government, 2009; Christie, 2011). In addition to harnessing the collective intelligence or 'wisdom of the crowd', public engagement in decision making achieves "public legitimacy that encompasses trust and compliance" (Pieczka and Escobar, 2012, p.1). Building on the success of her work to transform public service delivery using relational models, Cottam (2015, p.144) calls for a similar transformation in politics to engage politicians and the public in dialogue:

"Politics needs to create the conditions for new forms of creative, developmental conversation - just as between the front line and families - beyond the traditional



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political meeting, the focus group or the complaint form. It is through this new conversation that something shared, collective and relational will be grown.”

Scotland’s independence referendum in 2014 saw a record 97% of the electorate registered to vote and turnout of 84.6% (The Electoral Commission, 2014), the highest for any UK electoral event since the introduction of universal suffrage (Tierney, 2014). The level of public engagement was highly visible: at meetings and demonstrations, grassroots festivals and events (Webber, 2014) and in social media usage (Quinlan, Shephard & Paterson, 2015), challenging perceived voter apathy and citizen disengagement in political debate.

Understanding the reasons for this surge in public engagement in political issues has been the subject of a number of articles, reports and debates (Kirkaldy, 2015); it is suggested that voters felt empowered by making a meaningful choice that could lead to a “material difference to what would happen in the future”. Positive and creative campaigns framed conversations about the future in hopeful terms and engaged people who would not normally be involved in political debate (Andreou, 2014; Ascherson, 2014). Voters saw a clear link between their activism and their lives; by campaigning for political change, the result would impact on the issues that matter to them.

“It is clear the debate in Scotland has re-energised our politics and, in doing so, challenged our politicians to respond to the expectations and aspirations of our citizens.” (Hislop, 2014)

The Scottish Government is committed to providing opportunities to create a successful and flourishing country through “increasing sustainable economic growth” (Scottish Government, 2015a, p.4). One of the key aims of the recent economic strategy is to tackle inequality by focussing on four priority actions: investing in people and infrastructure, fostering a culture of innovation, promoting inclusive growth, and internationalisation (ibid). It is recognised that collaboration and working together with stakeholders and communities is crucial to the success of achieving a strong and sustainable economy (ibid). Therefore, being able to engage people in a meaningful way to take action is vital to implement real change.

Design brings a wealth of expertise and methods to creatively harness public energy and make the resulting insights tangible for decision makers. In this paper, we position Designed Engagement as a participatory and design-led approach to public engagement that generates meaningful dialogue and explores creative ways of tackling societal challenges.

Engagement

Engaging people in decision making

Traditional approaches to engaging with the public have been criticised for a lack of meaningful dialogue (Escobar, 2011). The ‘top-down’ Decide, Announce, Defend (DAD) approach sees authorities presenting the community with pre-determined options, and offering them no opportunity to influence the agenda. Public sector innovation is driven by the political process whereby politicians are responsible for coming up with new ideas and

the public vote for the party whose policies best represent their views (Murray, 2009). Public consultations are often rigid and formal, appealing to a narrow section of the population and generating limited originality in responses (Local Government Improvement and Development, 2010). Participatory approaches to politics offer a 'ground-up' approach giving people greater opportunities to influence decision making and improve the public services they use (ibid; Bate, Robert & Bevan, 2004; Cope & Kalantzis, 2011).

Rowe and Frewer's (2005) typology splits public engagement mechanisms into three distinct modes: communication, consultation and participation, based on the flow of information and the nature of the engagement with the public. Escobar (2011) further distinguishes between the purpose of engagement: public *dialogue* or public *deliberation*, with the latter concerned with reaching decisions and coming to conclusions, and the former seeking collaborative inquiry to explore the issues, ideas and public feeling. This paper is concerned with *participative* modes of engagement and public *dialogue* around societal challenges to inform change in the design of public services.

Engaging people in participatory design and research

Cope and Kalantzis (2011, p.46, 49) call upon designers to "broaden our repertoire of design practices" to respond to dramatic social and economic changes and contexts of design work. They conceive of design as a "foundational paradigm for representation and action" and an "engine of change", working to shift the balance of agency. They highlight the need for facilitation skills and the importance of participatory and user centred design methods in building relationships with users. Sanders (2001, p.1) describes a new role for designers in creating "scaffolds or infrastructures upon which non-designers can express their creativity" for societal and commercial benefit.

Participatory design is based on the beliefs that involving end users and stakeholders in the design process ensures better results, and stakeholders have a democratic right to be included in its design and will be empowered through participation (Bowen, 2009).

Participatory design researchers and practitioners have developed a large body of knowledge, expertise and tools to engage stakeholders in "collective creativity" (Sanders & Stappers, 2008, p.2), tailored to suit the context and based on an empathic understanding of the people involved. As participatory design is increasingly being seen as a strategy for addressing societal change, the contexts and stakeholders become the general public and our approaches to engage people in participatory design need to evolve to access this wider resource and the opportunities it presents. Addressing participatory approaches to service design, Sangiorgi (2011, p.30) argues that the discipline is becoming "an engine for wider societal transformations" through increased capacity and resource for communities to change themselves.

Contrary to conventional research approaches, participatory approaches differ primarily in terms of the "alignment of power" within the process (Cornwall & Jewkes, 1995, p.1668). Various modes of participation exist including contractual: where people are contracted to take part in experiments, consultative: where people are asked to give their opinions and

views prior to the design or development of interventions, collaborative: where researchers and people collaborate together on projects which are controlled by the researchers and collegiate: where researchers and people are considered as colleagues, working together using their various skills through mutual learning and control of the project lies with the people (Biggs, cited in Cornwall & Jewkes, 1995). Designed Engagement aims to engage with people at the collaborative and collegiate modes of participation, to empower those involved to feel a level ownership over what evolves.

Informed by Participatory Action Research (Reason & Bradbury, 2008, p.1) our approach aims to “create participative communities of inquiry in which quality of engagement, curiosity and question posing are brought to bear on significant practical issues”. We aim to provide the conditions and opportunities for new communicative spaces and experiential learning among those participating.

Dialogical approaches to public engagement

Highlighting the confusion caused by overuse, Escobar (2011, p.16, 9,) reserves the term *dialogue* in public engagement to refer to “the kind of relationship which broadens worldviews, reshapes perspectives and speaks to both our cognitive and emotional capacities for mutual engagement”. He quotes Anderson, Cissna and Arnett (1994),

“Dialogue implies more than a simple back-and-forthness of messages in interaction; it points to a particular process and quality of communication in which the participants ‘meet’, which allows for changing and being changed. In dialogue, we do not know exactly what we are going to say, and we can surprise not only the other but even ourselves.”

He helpfully contrasts *transmission* models of communication, i.e. “conveying and receiving messages accurately” with *dialogic* models; communication that seeks to build and sustain relationships allowing multiple voices to be heard and tensions to be explored. Listing key dynamics of dialogue he considers the need for openness, respect, listening, storytelling, finding common ground and exploring differences, whilst balancing advocacy and inquiry, and building a safe space for collaboration.

Wright and McCarthy (2008, p.639) introduce dialogical approaches to engaging with users to understand their perspectives and design empathic user interfaces. They argue that “In an empathic relationship the ‘designer’ does not relinquish his/her position to ‘become the user’, a position from which nothing new can be created, rather the designer responds to what they see as the user’s world from their own perspective as designer”. While the output of meaningful dialogue in public engagement with social scientists or policymakers can be an understanding of viewpoints and collective problem solving, when designers are part of the conversation the outputs have the potential to be tangible outcomes such as design concepts for new products or services or insights which inspire further design inquiry.

Asset-based approaches to engagement

Asset-based approaches promote the self esteem and coping abilities of individuals and communities, emphasising their positive capacity to identify opportunities and activate solutions, eventually leading to less dependency on professional services (Morgan & Ziglio, 2007; Foot & Hopkins, 2010; McLean, 2011). Asset-based approaches aim to promote health through the identification of 'health assets' which foster health and wellbeing in individuals and communities. The *assets* referred to can be anything that enhances wellbeing; examples include the skills, interests, networks, places and organisations that exist within a community. These approaches are inspired by the work of Aaron Antonovsky (1979) and his concept of salutogenesis, which states that it is "more important to focus peoples' resources and capacity to create health than the classic focus on risks, ill health, and disease". Public services set out to 'fix' these problems and take away control by making people passive recipients of services rather than active agents in their own lives (Foot & Hopkins, 2010). Asset-based approaches aim to build social capital within the community, as high levels of social capital are "correlated with positive health outcomes, well-being and resilience" (ibid, p.6).

Asset-based approaches underpin Designed Engagement; shaping the questions we ask, the conversations we share with communities and also how we present our findings. Through Designed Engagement we aim to shift the focus from passive participation to a more active dialogue with individuals and communities to enable positive human flourishing.

Asset-based approaches to design

Design is inherently optimistic (Brown & Wyatt, 2010), as designers seek to tackle social challenges and improve quality of life, imagining a "preferable future" (Dunne & Raby, 2013; McAra-McWilliam, 2014, p.25). Sklar and Gilmore (2004) urge a positive approach to designing within multi-disciplinary teams, referencing the growing movement of positive psychology (Seligman & Csikszentmihalyi, 2000; Carr, 2011) as inspiration for their approach to design. They suggest new ways of eliciting user feedback during the design process using positive questioning, e.g. "What is the one thing about this you would want us to keep, regardless?" and suggest phrasing negative findings as new goals for the design team. Instead of identifying design problems, a positive approach "aims to remove constraints and present new opportunities" (Sklar & Gilmore, 2004, p.32, 33).

In the practice of participatory design, we aim to harness the expert knowledge and creativity of the people we are designing with and for. By focusing on what a participant can do rather than things they can't, and the coping strategies they employ to overcome difficulties, we create a positive and empowering space for participants to share their experiences and ideas. We adopt an asset-based mind-set in all stages of the design process: reframing questions and language positively, ensuring products and services build on individual and community assets and empower participants to realise their resilience and creativity in meeting the challenges of everyday living.

Designed Engagement

We introduce the term ‘Designed Engagement’ to refer to the application of design methods and skills to transform the way we talk to people in the community. By creating bespoke and engaging experiences we can design for meaningful dialogue that encourages people to reflect and share with us the things that matter to them. The focus of design expertise might be: face to face interaction, objects designed to provoke dialogue (Wallace et al, 2013; Coombes, 2015), games (Blythe & Wright, 2008), film (Briggs et al, 2012), cultural probes (Gaver, Dunne & Pacenti, 1999), digital tools (Open Lab, 2014; Taylor & Cheverst, 2010) or social media (Drummond, 2014): anything designed to start an open dialogue and build relationships with a community for the purpose of designing change. Strategies for this type of design activity include: ludic design (Gaver et al, 2004), reflective design (Sengers, Boehner, David & Kaye, 2005), critical design (Bowen, 2009), metaphors and storytelling (Muller, 2003), and appealing visuals. As such, Designed Engagement can involve any number of different design disciplines and benefits from cross-disciplinary working.

Designed Engagement aims to not only engage people in dialogue to collaboratively explore ideas and differences in views, but to engage them in creative exploration of new ways of doing things to work towards preferable futures.

Designed Engagement: Pop-up approaches

In order to demonstrate what we mean by Designed Engagement with practical examples, we introduce the ‘pop-up’ approach. Pop-ups use bespoke, portable materials to create a physical presence within a public location. We go to where people are: e.g. community centres, libraries, hospitals and shopping centres, and our materials are designed to be intriguing to attract attention. Several design researchers facilitate the pop-up and use a thought provoking or surprising opening question as a hook to begin a conversation around the topic or theme of exploration.

Pop-up approaches are not new to design (Maxwell, Woods & Prior, 2013; GUK, 2015). The term pop-up is increasingly used to describe short-term commercial outlets such as restaurants or concept shops for big brands. In the commercial world, pop-up approaches may be used to test the market prior to investment in a permanent space, promote a brand and sell products at temporary events such as festivals, and/or create curiosity and novelty in retail experiences (Niehm, Fiore, Jeong & Kim, 2006). While there are similarities in the physical materials being designed, the aims and approaches of pop-up engagement and its commercial siblings differ significantly. Where commercial pop-ups seek to promote, sell or gather market research on an existing or proposed venture, public engagement aims to start a conversation without an agenda. Pop-up engagement has some similarity to ‘vox populi’ or ‘man on the street’, used by journalists to gather opinions from members of the public in response to topical issues. Parallels can also be drawn with interactive art installations (Morrison, Mitchell & Brereton, 2007), although our definition of pop-up engagement in this paper refers to a face-to-face interaction.

Similarly, Lindsay, Taylor and Olivier (2012) use the term ‘opportunistic engagement’ or ‘design on the street’ and advocate this as a fast and effective way of exploring design ideas or gathering requirements when the products or topics being explored have a broad interest to the general public. They highlight the difficulty of recruiting for participatory design events and propose this as a way of engaging with the public in the early stages of a design process, with potential to recruit participants for subsequent design sessions. In the pilot study they provide to illustrate this approach, a retail unit in a city centre location is used to gain feedback from the general public on a new concept for assisted living for older adults. Participants were asked to look at visual materials explaining the concept and reflect on how it might work for an older family member or friend living alone, voting with coloured dots on the visuals they found more appealing and informative. The researchers found it challenging to engage large numbers of participants (15 people over a total of 10 hours), but found that the feedback generated was pertinent and candid, and the immediacy of the method enabled researchers to explore comments and evolve the study materials to build on feedback in conversations with subsequent participants.

When designing a pop-up for public engagement, design efforts are focused on conceiving an engaging overall concept for the pop-up experience, which may include ambiguous visual materials or ‘props’ that spark curiosity and intrigue, placing something unexpected in a familiar community space. Opening questions are designed to be equally intriguing and inviting; using open, reflective and asset-based questions, aiming to ensure participants leave the pop-up feeling positive. We find it important to introduce ourselves and our academic institution to establish that we are not campaigning, selling or fundraising. Given that many commercial organisations compete for attention in public spaces, not everyone may be inclined to stop to chat. It is the role of the pop-up design and facilitation to establish legitimacy and communicate that this is something different: *giving* an opportunity to share their opinions and experiences without a ‘*take*’ or financial agenda. Following the opening question the designer facilitator listens and relates the responses to the broader topic, following up with questions and prompts to unpick the insights. Stickers and other ‘gifts’ are designed for each pop-up, giving the participants something fun to take away from the experience as a thank you and to provoke subsequent conversations with friends and family.

We have used pop-up approaches across a range of different projects, all related to the theme of individual and collective wellbeing. We will consider two discrete examples that demonstrate the use of research-driven pop-ups for different aims and at different stages of the design process.

Example of pop-up approaches 1: What's your Hidden Talent?



Figure 1: What's your Hidden Talents? The results of our engagement with members of the public were written on leaf tags and hung on a wooden tree (photo: Gemma Teal).

The aim of this pop-up was to reveal untapped 'assets' in the community and understand people's willingness and preferred methods of connecting with their local community. This was the first engagement for a new technology project to be co-designed with five regional communities in Scotland. The programme aimed to explore how advances in technology can support transformational change in our health and social care services. The experience was designed to be welcoming and fun, to stimulate and challenge existing thinking. The insights from this initial stage were used to inform the overall vision and to shape the design of subsequent participatory design methodologies.

The pop-up was deliberately designed to avoid explicit reference to technology, to avoid any potential barriers to engagement such as a lack of awareness or aversion to new technologies. The participants were asked to reveal their 'hidden talents' and consider whether, in the context of a world where money is problematic, would they be willing to trade their talents with others in their local community? They were also asked, what if anything would make life better for them? The participants were invited to write their contributions on 'leaves' and attach them to a freestanding tree (figure 1). Participants were rewarded with a sticker and a pen before the purpose of the engagement was explained. Finally the participants were invited to stay connected with the project by leaving contact details.

The pop-up locations were a community-based shopping centre, a 'destination' shopping centre and a busy hospital entrance area: across the three events (each lasting

approximately four hours) three facilitators were able to directly engage with over 250 people. Initially almost everyone answered the question “What is your Hidden Talent?” with the reply “I don’t have one”. However through discussion, and more often than not with a laugh, people began to discuss their talents and seemed to appreciate talking about positive aspects of their life. Despite the different locations and different motivations for people being there, the Hidden Talents theme and materials worked well, striking a chord with local people, creating a talking point and attracting the curious. The leaves were retained for analysis, and design researchers who facilitated the events wrote up their field notes describing memorable stories and interactions. Analysis revealed a wide range of local talents and interests, and identified themes subsequently explored in a series of co-design workshops (Geddes & Teal, 2013).

Example of pop-up approaches 2: What’s your favourite place in Glasgow?



Figure 2: What’s your favourite place in Glasgow? Pop-up engagement using a large illustrated map of the city to meet citizens and recruit them as community researchers (photo: Rebecca Phipps).

The pop-up approach was more recently used to recruit ‘community researchers’ to a new research programme which aimed to capture in near to real time the lived experiences and perspectives of citizens of Glasgow using a digital system of data gathering tools (Glasgow Centre for Population Health, 2016). The overall aim of the research programme was to pilot

the system and understand it's potential to support policy makers to involve the public's views in their decision making, with a secondary aim of testing methods for recruitment.

The pop-up aimed to attract the curious with a hand drawn illustrated map of the city showing key landmarks, main roads and rivers, printed on a large banner stand alongside an illustrated banner explaining the research project (figure 2). The pop-up had a high table for completing recruitment paperwork, and a jug of fresh, brightly coloured flowers. Pop-up facilitators asked passers-by the opening question "What is your favourite place in Glasgow?" and invited them to add a sticker to their chosen location on the map. Following a discussion around the map and the participant's favourite places, facilitators followed up to ascertain if they lived in the city and were eligible to be recruited to the study. Facilitators explained the research programme and if eligible, interested participants completed the necessary paperwork and were recruited to the study.

Over the course of seven recruitment events (each lasting four hours) at different community locations across the city, 128 community researchers were recruited to meet a quota that approximately represented the demographics of the city in terms of age, gender, ethnicity and deprivation level (Scottish Government, 2012). The main study is currently in progress and results will be reported in detail in subsequent papers.

Discussion

Reflections on Pop-up approaches

Pop-up engagement offers many advantages to designers seeking to gain understanding and build empathy with members of the public. It is fast and accessible, allows for high levels of engagement and surprisingly honest and considered dialogue despite the brief nature of the encounter. Based on anecdotal evidence, it offers the opportunity to engage with members of the public who would not normally take part in research, and can be tailored to a particular audience based on pop-up location, timing and through the design of engagement materials.

The pop-up approach is suitable in the early stages of a design process, when there is a broad topic to be explored, to get early feedback to shape a design concept or to engage and recruit participants for further research. When designing pop-up engagement tools it is important to be playful, and consider addressing the topic indirectly to surprise and attract passers by. Visual props like the tree (figure 1) or the map (figure 2) help to make the pop-up stand out and create a means of capturing conversations, with subsequent participants keen to see the responses from others in their community. In this way the props are both a way of generating and capturing conversation. Within our multi-disciplinary team we have product, communication, branding, interior, service and design research expertise; collaborators from social sciences and the voluntary sector. Pop-up design and facilitation benefits from this range of expertise and creative input.

When facilitating pop-up engagement it is important to be open to where the participant wants to take the conversation, listening for insights and asking relevant follow up questions to understand their perspective. Designers as facilitators bring their perspective and skillset to the dialogue, prompting with design ideas to explore the insight and identify opportunities with participants. Asset-based interviewing techniques ensure that the participant can be encouraged to see the positives and value in their response, for example highlighting resilience in overcoming personal challenges. We receive an overwhelmingly positive response, with participants genuinely surprised to be asked to talk about a positive aspect of their life, in a place where they would normally be talked *at* or asked for money. Maxwell et al (2013) discuss the role of the researcher (in their case ethnographer) within the context of pop-up environments for design research, and highlight the need to be adaptive and move between the role of facilitator, expert, participant or observer to suit the context. Although the examples given refer to pre-invited participants rather than spontaneous encounters with members of the public, their insights resonate with our experience and we would also highlight the importance of recruiting pop-up facilitators who are empathic, warm and understand the value of asset-based approaches.

Challenges of pop-up engagement include the need to quickly establish credibility and differentiate the pop-up facilitators from salespeople and on street fundraisers. It is important to choose locations where people are not in a hurry and may want to 'linger', avoiding, for example, shopping areas where the majority of people are on their lunch break, supermarkets where people are trying to achieve a chore as quickly as possible or busy thoroughfares. Pop-up approaches will not capture the voices of people who are housebound or ill, and therefore should be used in combination with other approaches to ensure engagement is inclusive.

Discussion of Designed Engagement

Designers bring a fresh perspective to the question of how to engage the public in dialogue, and an understanding of how to convey information in an accessible and appealing format. Design tools and approaches can make ideas and options tangible, allowing feedback to be used to shape project direction. As facilitators in dialogue with the public, designers can build empathy and identify insights that can be translated into opportunities with the potential to address complex societal challenges.

The influence of design can be seen in public engagement literature (Local Government Improvement and Development, 2010) and in recent consultations led by the Scottish Government. The 'Fairer Scotland' and 'Healthier Scotland' consultations are examples of openness and creativity in consultation, alongside a 'ground up' approach to fostering ideas (Scottish Government, 2015b). Materials include a card game to stimulate discussion and a deck of visual slides for inspiration, and funding is available for communities to hold their own local meetings to generate responses to the open and asset-based question "What should a fairer/healthier Scotland look like in 2030?".

Within the context of the challenges facing Scotland, particularly within healthcare where there is a drive towards individuals becoming more responsible for their own health, Designed Engagement approaches have a role in ensuring our public services can support and empower individuals by involving them from the beginning of the process.

Challenges for designers working in this area are a bias towards quantitative information and the need to achieve representativeness in the data gathered as 'evidence' of engagement in decision making. Qualitative methods and open engagement are not intended to be representative, and while Designed Engagement can achieve high levels of participation from the general public, the views and ideas gathered cannot be representative. However, the increasing complexity in research has led to an increased use of a combination of qualitative and quantitative forms of data collection and mixed methods approaches are becoming more recognised and valued, particularly in the field of healthcare evaluation (Cresswell, Klassen, Plano Clark & Smith, 2011).

A further challenge is in ensuring decision makers are prepared to ask open questions and listen to the results of Designed Engagement, which may challenge their existing assumptions and current ways of working. While designers inherently "embrace uncertainty and ambiguity" (Michlewski, 2015, p.53), it can be difficult for policy makers and public servants to feel comfortable opening up their decisions and challenges to public engagement without offering pre-determined options, asking closed questions and therefore receiving predictable results and feedback. To overcome this, it is the role of the designer as external to the issue to ensure decision makers take an active part in the Designed Engagement process, and to carefully consider how to record and communicate the findings to ensure the stories, insights and ideas meaningfully influence the direction taken. The designer as researcher can present both an objective view of the insights to inform decisions, and tangible opportunities to respond. In these complex social contexts, the humble designer (Slavin, 2016) is not the 'top-down' creative, but the conduit for dialogue between the public and their representatives. Given reducing budgets and increasing demand on public services, it can be difficult for management to allocate sufficient funding to the engagement process and design researchers and practitioners must demonstrate the value of their approach through innovative outcomes for people and communities.

Conclusions

Designed Engagement offers a real alternative to traditional approaches: not consulting around a range of pre-determined options or closed questions, but truly engaging with the public to understand what is important to them and what could support individuals and communities to thrive. Designers can bring a wealth of expertise and skills to public engagement to tap into the assets and ideas of the public and together creatively address social problems. This ensures that innovation is rooted in an understanding of people and developed with their input and ownership: leading to public services that reflect the aspirations of those who will use them.

Designed Engagement can be applied across a range of projects that aim to encourage participation with the public. Although the examples of projects presented in this paper are within the context of healthcare and social innovation, we propose that the pop-up approach has a range of applications, and can be used to engage with individuals and diverse communities across sectors for economic, educational or cultural advantage. The empathic approach of the designer ensures that the type of engagement is tailored to the individual or target group.

Future research offers the opportunity to develop different types of Designed Engagement given some of the limitations of the pop-up approach, for example, developing ways in which to engage with those who would not be reached through pop-up approaches or technology. There is also a need to develop evaluation methods that are appropriate to the engagement in order to gauge success. The impact of the Designed Engagement on the outcome of the subsequent research is another area of focus in terms of how it shapes the research, service or policy being considered.

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Public design and social innovation: Learning from applied research

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Abstract: The design approach is increasingly adopted as a creative process to create innovation in organization. The process is based on the holistic way designers apprehend problems. Even though the design approach is sensitive to human experiences, its contribution in generating innovation is uncertain. In the light of a literature review on how design for social innovation should be conducted, we propose to revisit research projects in public and social contexts undertaken by the authors in the last ten years. This paper hopes to shed light on what is recommended in literature and on what really happens in the practice of public design projects. Over the years, the authors produced a considerable amount of design research centered on the implantation of public infrastructures in urban and regional landscapes. Sometimes, these research projects caused challenges for the nearby populations as well as for the general public in terms of social acceptability issues. This paper proposes a first critical observation of Quebec's public design research contexts through the analysis of three types of design research projects: a thesis, an applied research on public infrastructures for a public organization and an academic research financed by public funds on public infrastructures.

Keywords: Social innovation; Public design; Landscape studies; Design research

Introduction

Nowadays, many governments are tackling numerous socioeconomic challenges where the procedures and ways of doing are questioned as well as their underlying institutions and politics (Julier & Moor, 2010; 27e Région, 2010; Best, 2012). As a matter of fact, some suggest that public management should profoundly reform its structure to take up on environmental and social issues and address some of today's challenges, for instance: the introduction of new technologies, the aging population, the crisis in infrastructures, the



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climate changes as well as the pressure on public finances (Sørensen & Torfing, 2012). In the light of these observations, design as a strategy and methodology is seen, by many authors, as a promising avenue to meet these challenges or at least reduce their negative effects on people (Manzini, 2014; Kolko, 2013; Gardien & al., 2014). Furthermore, the recent interest for design thinking suggests that an innovation model oriented towards design could offer particularly effective tools to tackle these challenges (Kimbell, 2009; 2011; 2014; Cope & Kalantzis, 2011; Design Council, 2013; DBA, A. P. D. I. G. i. a. w., 2010; Sangiorgi & al., 2015; Bason & al., 2014).

Sangiorgi and al. (2015), in a very recent report on design for innovation in public services, observed that designers still tended to work in a traditional way, that is, in a product delivery logic that seeks to meet the differentiation of the market offer and in doing so, is limiting the scope of design strategies. However, public design should be closely linked to an approach involving profound changes in the design practice and in the organization as well as in the overall configuration of the offer. Bason and al. (2014) in their latest book on design in public policy transformations showed skilfully that design is in mutation and that we should go beyond the tangible purpose of design. In this way, a reference to Buchanan's, *Design Orders*, would be useful for his proposition of the organization of the design practices and manifestations in four categories:

1. Graphic - Signs, symbols, prints
2. Industrial - Products
3. Interaction - Services, experiences, interfaces, information
4. Systems - Business, organizations, education, government

Drawing from its different practices and manifestations, public design was mainly developed around the public participation and the participatory democracy interest (Bason & al., 2014; Sanoff, 2000). These interests gravitated towards design in the 1970's with participatory design approaches, which really crystallized with the keen enthusiasm of the 2000's for co-design and service design (Sanoff, 200; Bason & al., 2014). Thus, public design falls in this social shift for design: "This shift is in part captured by the movement of social entrepreneurship and social innovation (Mulgan & al., 2006; Ellis, 2000), and in part by the growing interest in public sector innovation" (Bason & al., 2014; 9). Hence, public design is concerned by social innovation and it carries interventions in public contexts (education, health, mobility, transport, infrastructures) as well as all projects which are in the public space and are shared by all (urban property, landscapes, real estate and facilities).

Design's social innovation models

The Réseau Québécois en Innovation Sociale (RQIS) defines social innovation as: a new idea, approach or intervention, a new service, a new product or a new law, a new organization type that provides a more adequate and sustainable response than the existing solutions to a well-defined social need; a solution that finds favour within an institution, an organization or a community and that produces a measurable social benefit for the collectivity and not

only for certain individuals (RQIS, 2011). Thus, the social innovation notion could be defined as a transformational approach, which differs from technological innovations (Mulgan, 2012; Cajaiba-Santana, 2014). In fact, Cajaiba-Santana (2014) states that the acceleration of social changes engages challenges that exceed technocentric approaches. However, even though the notion of social innovation is widely used, there are only a few existing research projects on the subject and they are quite often sparse and the selected concepts incoherent (Cajaiba-Santana, 2014).

Design, by its iterative nature and its process centered on the transformation of a problematic situation or ill-defined problem towards a more desirable state, in the sense of Herbert Simon's (1969) and of Rittel and Webber (1973) wicked problem, could be a favourable approach to social innovation (Département de Loire-Atlantique, 2014; Manzini, 2014; Bason, 2014; Manzini & Staszowski, 2013). Manzini (2014; 2015) underlines that design could encourage the implementation of realistic, effective, sustainable and reproducible social innovations. Furthermore, Manzini thinks that design innovation could address challenges caused by the ongoing economic crisis and foster the transition towards sustainability and equity. Manzini also states that social innovation evolves with society and that creates an open window on possibilities never explored before. In doing so, Manzini promotes the idea that design can be a social change agent. Gardien and al. (2014), in turn, studied the changes in the actual practice of design in regards to socioeconomic issues. Their analysis is based on a categorization of the different socioeconomic paradigms that have crossed design practice history (industrial, experience, knowledge and transformation economy) and to stress that to innovate in an ever-changing society, we have to be able to adapt to social change. Design as interpretation (Verganti, 2009) is an approach less focused on social innovation but more on the notion of innovation by design. In this perspective, Verganti stresses that the knowledge alone of design thinking tools and techniques are not enough, because design is, first and foremost, a capacity to interpret the world by giving it meaning through an object and/or a service. Moreover, design should allow the transformation of negative experiences into positive ones. In other words, design could offer the possibility to move from a hostile environment to a comfortable or satisfactory one (Norman & Verganti, 2014) or, at the very least, towards a socially acceptable one. Norman and Verganti (2014) emphasize that if the objective is a new understanding of what is important to people than design projects sustained by innovation research can lead to radical innovation on the meaning given to objects and/or services. Moreover, Norman and Verganti also highlight that innovation research by design based on interpretation processes can generate distinctive and reproducible radical changes. In addition, Bentley (2014) states that the emergence of design in the public context sets prominently the strategic role of design and its place in the project process as well as in the public governance. Moreover, it comes as no surprise that some studies show that design is an innovation factor when the management approach is focused on design and supported within the organizations executives (Szostak & al., 2011; Rampino, 2011; Baglieri & al., 2008; Jenkins, 2008).

From this perspective, we understand that to be profitable, design should be transversely integrated to the entire organization and carried through a strategic culture of design as an innovation methodology. In doing so, the designer is no longer seen as a punctual contributor of creative expertise in projects. Hence, innovation by design imposes three types of changes in the way of doing things (Gagnon & Côté, 2015): changes in the design processes, changes in the generated experiences and changes in the organizations' environment. The following model is attempting to delimit the diversity and plurality of the manifestations of social innovation by design in public contexts.

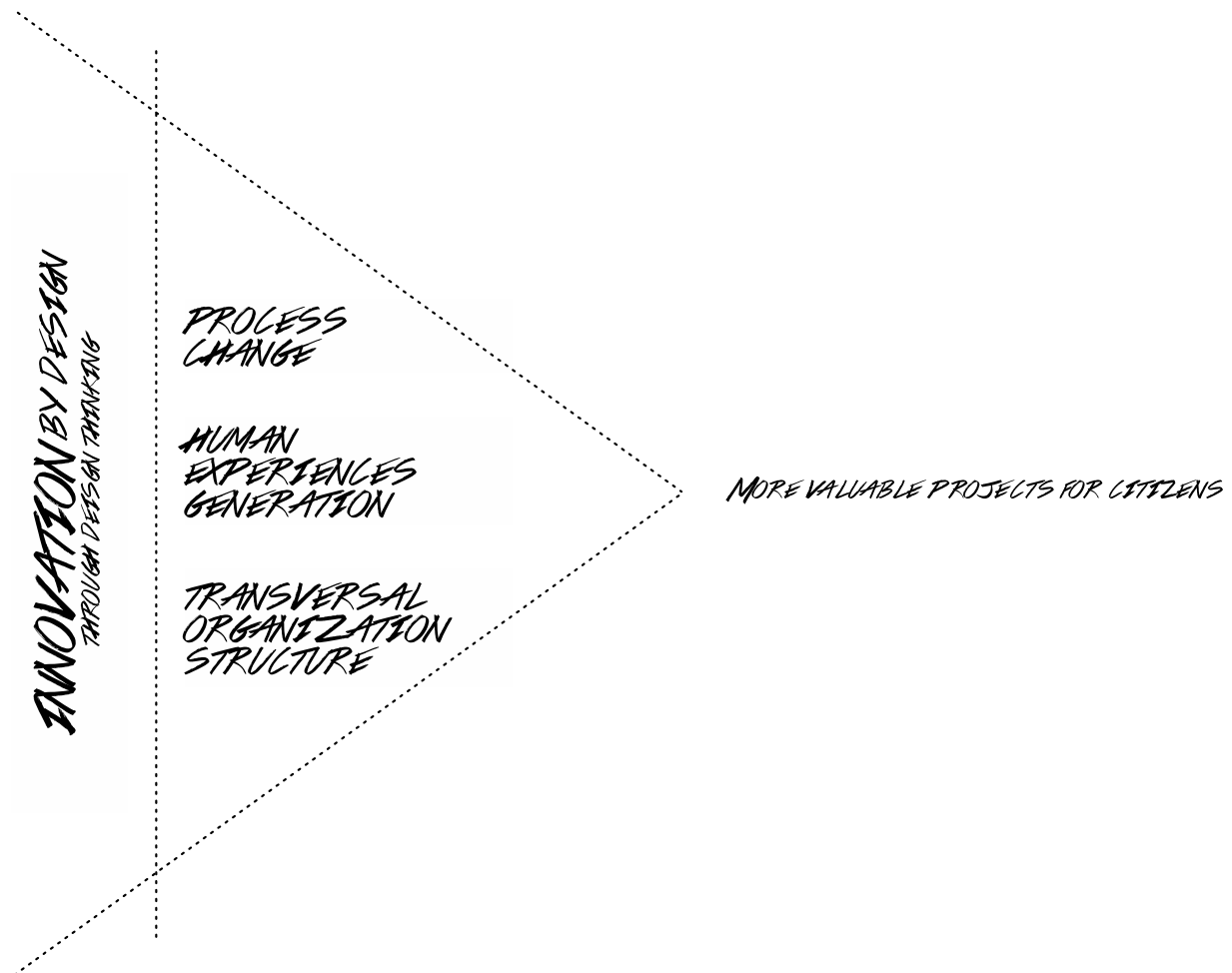


Figure 1 Innovation by design framework

Social innovation by design and public context: 3x changes

An iterative and collaborative process

The design thinking approach is increasingly adopted as a creative process to create innovation in organization. The process is based on the holistic way designers apprehend problems and can generally be described in 4 or 5 stages based on convergent and divergent thinking techniques (Kimbell, 2014). The Design Council (2013) characterizes it as a process that begins with a discovery phase where different perspectives fuse and then converge to

define a problematic. In fact, some qualify this stage as empathic because it is where the information from the lived and felt experience of the individuals concerned with the studied problematic is collected (Authors, 2014). Afterwards, the propositions are developed and delivered (Design Council, 2013). Kimbell (2014) adds that these stages are interconnected and are often achieved in a disorderly manner or at least in a nonlinear way. Furthermore, Kimbell also indicates that design thinking and design practice are two different perspectives and the design thinking methods evolve mainly outside of the traditional practice of design where ideation is often conducted intuitively and implicitly (Kimbell, 2009). These process changes generally imply the introduction of a more sensitive attitude towards human experiences in the development of innovative solutions. This kind of sensitivity is largely handled by integrating empathy in the design process as reflected by the employment of ethnographic and co-design tools in the design practice (Authors, 2014; Bason, 2014; Kimbell, 2009, 2014; Köppen & Meinel, 2012; Manzini, 2015). Moreover, in the public management contexts, a growing number of participatory and co-design approaches are arising and many think that collaborative innovation provides one way of transforming public projects (Sørensen & Torfing, 2012).

A transformation through a renewed and more human experience

Even though the design thinking approach is sensitive to human experiences, its contribution in generating innovation is uncertain. In this perspective, Verganti (2009) proposes that it is the contribution of a significant experience that brings innovation to a design project and that the changed experience of an object or a service can create radical innovation. The Design Council report (2013) on design for public good demonstrated that the overall product and service experience is essential to value creation. These experiences which tie the tangible and the intangible lead to the proposition of what many call service design. This applies to an interdisciplinary practice of design that analyses the ecosystem services in order to create a coherent and enjoyable experience adapted to the expectations and the needs of the people it intends to serve. Even though service design is often associated to the digital world, it is not limited to it. In fact, service design looks into extensive details related to the citizen's daily activities as well as those who provide the service (managers, attendants, etc.) In this way, designing a service really means creating a customer service counter, a waiting room, signalization delivered through diverse forms, a website, an application or even a park bench. In summary, service design when applied to public design allows the adoption of a holistic approach involving all design disciplines to intervene appropriately towards a specific problematic (Design Council, 2013).

A strategic role for design in organizations

In order to go even further, the role of design in organizations should also be questioned. Postma and al. (2012) stresses that it is not enough to introduce empathic approaches and rely upon human experiences in design projects. Actually, this perspective should be widely supported and maintained throughout the organization. Thus, according to the Design

Council (2013), design in public contexts is based on three distinctive features of social innovation by design: multidisciplinary teamwork, commitment towards citizens and holistic approaches in the study of public services. In this perspective, design is seen as a way to surpass organizational silo structures and encourage collaborative work, as a continuous validation approach generating few risks through iteration and prototyping and, as focused on the diversity of human needs with tools offering tangible solutions to the raised issues (Design Council, 2013; Best, 2012). Hence, the Design Council has categorized the integration of design in public contexts in three steps with The Public Sector Design Ladder:

5. **Design for discrete problems:** Professional practice of design aiming to improve a specific situation with product and service development.
6. **Design as capability:** Integration of design to the public service projects culture in its exercise as well as in the decision making process. The managers have the capacity to seize the role of design allowing the integration of design professionals in projects to identify problems in an overall innovation by design approach (*design thinking*).
7. **Design for policy:** Integration of *design thinking* to the development of public policies.

From textbook to fieldwork: What gives?

In the light of how design for social innovation should be conducted, we propose to revisit research projects in public and social contexts undertaken by the authors in the last ten years. Hence, we are dwelling on how these projects can be included in social innovation by design framework models introduced earlier (Gagnon & Côté, 2015). How can design be brought up to it and what role does it play in creating meaning for communities and public organizations? Therefore, this classification aims at understanding the existing and/or non-existing links between research and practice of public design in Quebec. More specifically, on how its strategic role can or cannot prescribe a social innovation methodology. This first critical review is inscribed in a larger research project intended to study social innovation in public design in Quebec. In other words, the intention is to clarify Quebec's design contribution to social innovation in public contexts in order to categorize the practices, the processes and the consequences on communities and organizations. Ultimately, this design research review is questioning the benefits of research findings in public design contexts as well as in the inherent constraints of design's applied research.

Public design research: The analysis of three types of design research projects

This paper hopes to shed light on what is recommended in literature and on what happens in the practice of public design projects. Over the years, the authors produced a considerable amount of design research centered on the implantation of public infrastructures in urban and regional landscapes. Sometimes, these research projects caused challenges for the nearby populations as well as for the general public in terms of social acceptability issues. Thus, these research projects were mostly developed as expert

guidance or monitoring approaches in an implantation project enquiring alongside the design's role as a social acceptability strategy. Methodologically, the research projects adopted a mixed (mainly) qualitative approach integrating semi-conducted interviews with concerned populations, in situ visual and experiential analyses as well as project process analyses. Furthermore, it is important to mention that very few critical studies on Quebec's design practices have been conducted (Choko, Bourassa & Baril, 2003; Baril & Comeau, 2002; Racine & Findeli, 2003; Desrosiers, 2009, 2010, 2011; Messier, 2013). In reference to the most recent studies of Desrosiers (2011) and Messier (2013), we observed that these research projects focused more on the professionalization of the design practice in Quebec than on design as an innovation methodology. Moreover, we observed that very few studies discussed design's contribution in public contexts with the exception of the interest raised from public contract competitions (Desrosiers, 2011).

In a more general sense, the discussions around the strategic role of design in the overall publications is quite new and is often more a statement of intent or a promoting effort than a critical portrait supported by empirical studies or theoretical reflections. However, we should mention the work of Bason and al. (2014); Manzini and Staszowski (2013) as well as of Sangiorgi and al. (2015) as exceptions. These publications have identified different public design manifestations but without necessarily drawing a clearer picture of the situation. Thus, none of Quebec's contributions are listed except for a Canadian initiative that is briefly described in Bason's (2014) publication. Furthermore, Bason (2014) as well as Manzini and Staszowski (2013) highlighted that more studies should be pursued to get a better grasp and understanding of social manifestations in design, particularly in public contexts with regards to assessing its contributions. Therefore, this paper proposes a first critical observation of Quebec's public design research contexts through the analysis of three types of design research projects: a thesis, an applied research on public infrastructures for a public organization and an academic research funded by public funds on public infrastructures. We will initiate this analysis on the basis of our literature review regarding social innovation and design thinking in public action. We will also study the relation between design research and its impact on public projects by identifying the designer's and public manager's roles in these projects.

Thesis Context - Energy infrastructures

This research was conducted in the context of a thesis. This kind of research was proposed in the hopes of improving the understanding of design in public context and enlightening the way we could transform actual public procedures with the contribution of design as well as with an evidence-based knowledge. The research project synthesis that follows illustrates our point.

The major challenges led by the implantation of high-voltage power lines mainly concerns the physical, spatial and social integration to the territory. In Quebec, it is important to know that these projects are conducted by a state-owned enterprise and implies complex environmental assessment processes achieved by experts and involving public hearings.

Generally, these processes lead to a reactive position from stakeholders, namely for or against this kind of projects. In fact, many of these infrastructure projects had to face considerable social protest in regards to the major transformations these industrial equipments bring to the territory causing important changes in the living conditions. These equipments are considered ugly by the population, they degrade, damage and even worse, destroy the landscape. In this sense, many discussions and debates, from North America and Europe, regarding the implantation of high-voltage power lines demonstrated that the aesthetic dimension of these projects is a dominant factor of their social acceptability and that sometimes, constitutes a major obstacle to the implantation of new power lines. Moreover, even though citizens' concerns towards these kinds of projects are usually of landscape nature, project managers used design as a mitigation measure and therefore, as a punctual intervention striving to aesthetically improve the equipment in order to get the project accepted.

The results of this particular research relied on three types of data (in situ observations of high-voltage power lines implanted in the territory, public hearing memoir analyses on environmental issues and semi-conducted interview analyses) limiting the phenomenon to its spatial, social and political dimensions. Moreover, this research questioned the design's role in its ability to respond to landscape and social problems when restricted to the design of a "beautiful" electric pylon to allow a "reformed landscape". This can be illustrated by many design competitions taking place over the years. More recently, with ENEL, EDF and FINDGRID contests as well as with the emblematic project of Henry Dreyfuss in the 1960's. However, this research pursued the reintegration of design in the global approach of the project, particularly during the planning phase in order to go beyond the embellishment strategy usually employed over the years. Thus, the research introduced a reflection on the political instrumentalization of the one-off use of design and in doing so, mirroring the reparation logic more than the creative use for communities. Insofar as the social discourse tends to valorize the absence of equipment to enhance the overall landscape, the electrical pylons design becomes a strategy inscribed in a wider landscape project that greatly relies upon reconciliation measures in tune with the everyday realities of the territory. Hence, design here becomes a political mediation tool that explicitly aims at gaining acceptance of the implantation of a power line. More so, the landscape issue is diverted from its social complexity by lessening the equipment's value solely on its visual and formal considerations.



Figure 2 Energy infrastructure project: Lachine Canal promenade (Montreal, Canada)

Applied research on public infrastructure for public organization¹

In this kind of research we usually propose to study two or three elements for the conception of an infrastructure, namely its vegetal, visual and/or social components in pre or post implantation contexts. The nature of the contracts with the public organizations generally indicates the kind of data to be studied and the publication (or not) of the findings. This political and contextual sensitivity may explain the difficulty to really orient these kinds of research projects in a more evidence-based approach.

A mixed methodology of qualitative and quantitative data is typically proposed and chosen to illustrate that design projects should use a variety of methods to better comprehend the generated effects of an infrastructure. The chosen methodology will generally involve inventory methods, visual experience observations as well as semi-conducted interviews. Moreover, the study could also include a wide web-based survey that allows to look further into the conception of infrastructures across the general population. This kind of research initiated the will to better understand the role of infrastructures in the living conditions of

¹ This type of research usually fits in contexts that demand nuances, particularly in terms of the implications that should accompany (or not) the public projects. In this paper, the authors chose to present the project's generic contexts in order to avoid all stakeholders prejudice, including other researchers and public partners involved in this type of research projects.

people. There is no question that this type of study could strike great resonances with the research community interested in the subject.

Generally, the results are oriented to propose a contextual approach on the design front in order to analyze every utility equipment project as a design project at the neighbourhood level and less as an infrastructure and engineering project. Additionally, the design project should seek the compatibility of elements with each other whether it concerns the infrastructure itself (shapes, materials, textures, etc.), the landscape design or the reconciliation of the functionality and the outreach activities around the utilities. On the other hand, it would be appropriate to initiate social perceptions measures and analysis practices to better understand this kind of compatibility before and during the project. In fact, this kind of study demonstrated the importance and complexity of the perceptions' role in the understanding and appreciation of public infrastructures. Thus, this perception is nourished by the appearance as well as its semantics and meaning. Hence, in order to better understand the concerns and answer them across the conception of the infrastructures, it would be advisable to integrate an inquiry methodology to the design projects or even to rely on the efficient sharing of information between the project stakeholders as well as starting targeted communication practices with citizens.

Academic research financed by public funds: green infrastructures

This study was financed by public funds and could be identified as a traditional human sciences research about design projects. The study explored the aesthetic appreciation of extensive green roofs in order to understand more accurately the factors that contribute to their social acceptance. Undertaken by landscape studies, the research pursued a holistic comprehension of the citizens' aesthetic appreciation of their perceived and lived experience in order to give advice to designers for the conception of extensive green roofs and in doing so, encourage their large scale implementation. This approach is in line with empathic design where humans are at the center of design preoccupations. Thus, this project was mainly developed in a culture of landscape design rather than in a culture of landscape planning.

The results of this study were provided by the combined analysis of an in situ experience of extensive green roofs from the cities of Montreal and Quebec, Canada, as well as from semi-directed interviews of participants from the greater Montreal region. In general, the study revealed that the perception of extensive green roofs is positive and its appreciation is greater than for a traditional roof. However, even if the environmental benefits of a green roof were recognized, it seemed useless when a physical or visual access to the roof was not granted. In this perspective, the present study proposes an intervention on roofs that could go beyond its strict greening. In fact, the design of green roofs should encourage our physical presence when possible or at least draw attention to its observation and contemplation. Otherwise, the costs and efforts needed to implement a green roof could be considered less relevant despite its environmental benefits.



Figure 3 Green infrastructure project: École de cirque extensive green roof, NIP Paysage (Montreal, Canada)

Food for thought

In the following table, the three stages of social innovation by design in public design projects that were earlier presented are reclaimed to apply them to how the evidence-based approach could be effective in the context of these three kinds of research studies. We should mention that there is a significant difference between the objectives of each research and their academic contexts and so, in their public projects' scope. This distinction is put in Table 1 in terms of their different implications. We tried to illustrate the links (or not) between the activity of research solely about design in public projects and the activity of design and public management in itself. In this way, it is possible to distinguish the type of design processes and the studied projects, the type of meaning carried by communities that were studied and the way they are actually introduced (or not) in the design process as well as the challenges brought up by the larger introduction of design in public organizations. Ultimately, this also defines what lessons can be learned through these research projects and what should be linked in regards to public design. We should also discuss more concretely the design's role as well as design and public management practices through their current manifestations. In the end, it will enable us to enquire more adequately on the scope of design public practices as well as research lessons in such contexts. In other words,

what past experiences in design research allowed to learn and how it can reinforce the design research frame with more evidence-based action.

Table 1 The three stages of social innovation by design in public design projects.

Research context	Thesis	Applied research on public infrastructure for public organization	Academic research financed by public funds on green infrastructures
Public design study elements	Social perceptions and landscape issues. Visual, experiential, social and political data. Design's role in major projects. Design's role in political purposes.	Public design project monitoring approach. Social perceptions of a public design project and design's role in solving the social problem.	Social perceptions of green infrastructures on a wide implantation perspective and of supporting public politics. Social discourses on the ecological benefits of the interventions to orient design projects and public policies.
Academic context	Thesis	Research contract	Public funding
Expected results about evidence-science based design	Design criteria for future projects	Design criteria for specific projects	Design criteria for future projects
Type of design projects and public management issues			
Design in the project process	Design as a mitigation measure more than a strategy for a project. Design as a means to get a project accepted. Design as a limit to professional interventions.	Design as a mitigation measure more than a strategy for a project. Design as a means to get a project accepted. Design as a limit to professional interventions.	Traditional design projects conducted by design firms.
Human experiences generation projects	Expectations in regards to the experience and meaning of an infrastructure as an essential input for future projects.	Expectations in regards to the community and the neighbourhood's life as an essential input for the project.	Expectations in regards to the experience and meaning of an infrastructure as an essential input for future projects.

Study of the project's organizational structure	Design for discrete problems.	Design for discrete problems.	Design for discrete problems.
General knowledge on public design	Development of a wider intervention framework for design in projects to facilitate the integration of the overall dimensions studied in a project (i.e. spatial, social and political). Results oriented towards design for policy.	Results oriented towards design as a capability. Design as means to get a project socially acceptable.	Social expectations and perceptions in regards to the public politics context. Results oriented towards design for policy.
Design and public management activities			
Public manager's role	Design as a discrete intervention. Little consideration for design as a global and strategic approach.	Design as a discrete intervention. Little consideration for design as a global and strategic approach.	N/A
Designer's role	Creative practices rather than strategic ones. Punctual approaches and out of step with the social concerns studied. Link between research and projects not so conclusive.	Creative practices rather than strategic ones. Punctual approaches and out of step with the social concerns studied. Link between research and projects not so conclusive.	Creative practices rather than strategic ones.

Discussion

As a hypothesis for future consideration, this first analysis showed that design in actual public contexts is often used to resolve problems punctually. In fact, it is interesting to observe that this attitude is not only carried out in public management contexts where silo managing is predominant, but also by the designers themselves. In the same way, the integration of an evidence-based approach is as difficult in public management as it is in design projects. As a matter of fact, the applied research is often introduced outside of the realities of design projects, as additional information, even though design usually outlines the studied problematic. Furthermore, research has typically less than hoped for strategic impact on project orientations and in so, cannot implement major changes in design and public management practices. In fact, design intervenes (too) often in mitigation practices, project assessments or criteria recommendations. In other words, design takes action on

more punctual interventions rather than in the framework of the project itself. Therefore, a gap between design practices and public projects seems to exist as well as between knowledge transfer of research data directly in the project. In addition, a discrepancy also appears in the integration of the complex public design issues in both the design process and the public management. The nature of the academic context could explain the gap in some way, but more analysis is needed to conclude that it is the only explanation. However, this review was a first attempt to characterize this gap and it is essential to study more fully the whole process of design, public management and scientific knowledge in public projects as well as their related influences.

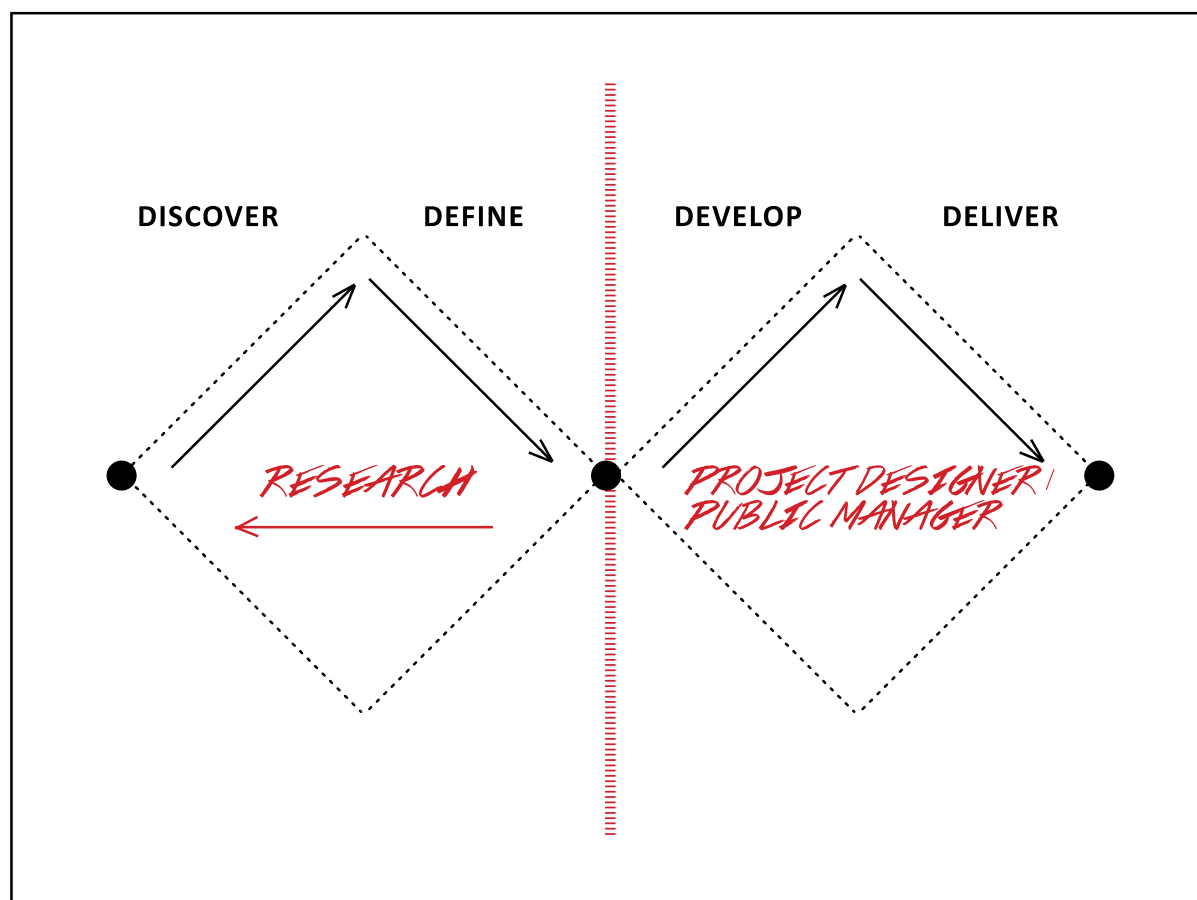


Figure 4 The big gap: Hitting public designs' wall - Inspired by the «Double diamond diagram» (Design Council, 2013)

Conclusion

Therefore, public design should be investigated more intensely and the necessary reference and action framework should be developed in order to gather the perceptions of designers, managers and researchers to orient practices towards evidence-based projects. The present work on public innovation should benefit from the new paradigm change in management, going from the old public administration, to a new public management and ultimately, towards a new public governance. If public innovation by the new public management

initiated a model inspired by management practices coming from private companies and from marketing, the new public governance should redefine design's role and the collaboration at the heart of public management practices (Sørensen & Torfing, 2012). In the latter, design is more conceived as a strategic practice that could enhance the understanding of the issues related to social concerns in the early stage of a public project. In fact, design research could surely help to orient that kind of design practice. However, these thoughts on public management should be further explored in the light of public project researches and their concerns on common good. Furthermore, some examination should be conducted on the deliberation consultant's role, as a social acceptability oriented practice, in particular research which participates in the early inclusion of citizens' concerns that could orient the design activities (i.e. targeted interviews). In fact, some are questioning the real impact of participatory approaches in public contexts as well as the possible misuses in terms of democracy. In this way, Walker, McQuarrie and Lee (2015) recalled that in:

“[c]omplementing increasingly sophisticated stakeholder management technologies, this type of «designer democracy» has a number of potentially regressive outcomes. Deliberation consultants build public legitimacy for the retrenchment of programs, they enhance the reputational capital of the consultants' clients, and they encourage citizen mobilization focused on short-term, individualized action” (Walker, McQuarrie & Lee, 2015; 17).

Without willingly diminishing public designs' present work, we think that it would be advisable to develop a greater knowledge of these issues as well as different models of design practices in the public context. This initial review of social innovation by design in public contexts brings us to consider the shortcomings of participatory methods, design research methods and design thinking in public action. We think that we should question the public design projects regarding their processes and responsibilities towards their impact in the transformation of public management and their influence on public projects. Moreover, we should investigate how they are integrated to new meanings emerging from public design and how organizations implement these innovating solutions. In other words, we should study more closely public innovation contexts as well as their link to social innovation by design. Thus, there are many and necessary thoughts to have if we want to consolidate this field of activity and its public transformations.

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Design as analysis: examining the use of precedents in parliamentary debate.

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Abstract: Design continues to look beyond the confines of the studio as both practitioners and researchers engage with wider social and political contexts. This paper takes design into the Parliamentary debating chamber where a country raises and debates problems and proposes and explores solutions. There is an increasing amount of work that explores the use of design in policy-making processes but little that explores design as an interpretation of the Parliamentary process. This paper draws on one characteristic of the design process, the use of precedent, and examines how this appears and functions in Parliamentary debate. The paper argues that this 'design analysis' gives insight into debate as a design process and into the debate transcript as a naturally occurring source of design data. This contributes to the scope of design studies and suggests that the UK Parliament could be considered one of the most influential design studios in a country.

Keywords: political debate, design process, design precedents, design analysis, design data

Introduction

The scope of design studies; Design + Research + Society

The nature, purpose and scope of design studies have been questioned throughout its developing literature. This can be seen in early distinctions between rationalist and random methods identified by John Chris Jones (Jones, 1984), in attempts to define the discipline in terms of its technological attributes and scientific rigour (for example, Cross, 2001) and more recently with Cameron Tonkinwise's review asking what design studies is good for (Tonkinwise, 2014). Alongside this ongoing inquiry, design studies has been instrumental in effecting a broader engagement with design in terms of, for example, professional practice



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(Schön, 1983), business management (Brown, 2009), object speculation (Dunne & Raby, 2013), critical practices (Di Salvo, 2012), and policy design (Miller & Rudnick, 2011).

An increasing number of government departments and other public bodies are engaging designers, design practices and design thinking in order to help with the development and implementation of complex and potentially intractable issues (see for example Kimbell, 2015). These engagements follow a tradition of work that can be traced back to Schön's exploration of policy and design (Schön, 1980), the 1982 DRS/RCA conference on Design Policy (Langdon et al, 1984) and the 1973 Design Research Society conference on Design Activities (DRS/DMG, 1973). There is thus an established connection between the practice of design, the practice of design research and the practice of government.

This paper builds on work reported at DRS 2014 (Umney et al., 2014) that identified the potential insights to be gained from viewing political debate as a design process. This paper further explores that connection by adopting design as a way of analysing how Parliament works. It begins by identifying a characteristic perspective of the design process, the use of precedent, that can be used as a way of interpreting a debate. This is then adopted as a method to analyse a specific debate. The results of this analysis are then developed in a discussion that concludes by calling for stronger connections between design as practised and studied and society as embodied in the practice of government.

A perspective from design

One view of the design process is that designers progress a project by creating shifts in perspectives. The shift in perspective as a designerly practice was proposed by Jones (1971) whose design methods pre-empted more recent adoptions of perspectives from other fields. Seeing the situation from a different perspective or frame is a theme subsequently developed in various accounts of the design process, most notably in the work of Donald Schön whose early work on the displacement of concepts (Schön, 1963) demonstrates his starting point for later developments in positioning "seeing-as" and framing as part of the design process (Schön & Wiggins, 1992; Schön & Rein, 1994). Schön's work has been operationalised by several authors as a method of analysing design activities (e.g. Valkenberg and Dorst, 1998, Blyth et al., 2012) which seek to identify instances of framing and related activities taking place within a design discourse.

Shifts in perspective are proposed in the wider and popular literatures of design thinking and by design researchers, such as those engaged in the Design Thinking Research Symposia (e.g. Cross et al., 1996; McDonnell & Lloyd, 2009;). They adopt analytical perspectives from other disciplines, such as linguistics or cognitive science, as a way of approaching, interpreting and increasing our understanding of design activity. This paper builds on that research trajectory by taking an aspect of design activity and adopting it as an analytical perspective.

A specific instance of how shifts in perspective are deployed in design can be found in work on the use of precedents. By drawing on perspectives from the past, and looking at the present situation from or through that perspective, designers deploy these shifts in a

number of ways. Precedents are seen to allow designers to move quickly towards a solution and can be found, for example, in architectural practice (Alexander et al., 1977), knitwear design (Eckert and Stacey, 2000) and engineering design (Ball & Christensen, 2009).

The use of precedents also affirms the shared identity of the team of designers. Eckert notes this, but it is explicitly seen in Lawson's (1980) experience with architects at Richard McCormac's office, whose development of specific terms, and a growing portfolio of buildings that the team has worked on, contribute to the way that individuals identify themselves as a team. The use of precedents is also recognised as a mechanism that reflects, or rejects, previously asserted values. Modernism asserted that degenerate bourgeois values from the past should not be referenced in modern designs (Banham, 1960). Conversely post-modernism refers to an eclectic range of precedents partly as a response to the "puritanically moral language of orthodox Modern architecture" (Venturi, 1966).

These examples provide a broad overview of where clear uses of precedents have been observed in design literature and practice. On the one hand the precedent is a workaday tool of the designer who, especially in a commercial environment, is required to produce designs that fulfil a brief, and can be delivered to a budget and on time. This kind of precedent acts as a kind of shortcut. On the other hand, the precedent, even one as seemingly innocuous as a knitted sweater, inevitably carries with it, intentionally or not, values. These values might, in terms of a fashion item, allow the wearer to identify with a particular group or lifestyle choice. They are also seen to allow the designer to assert their membership of a team, as in McCormac's office, or to be associated, or dissociated, with a wider movement that engages with morals and orthodoxies. In all cases the precedent is a source drawn from the past, with particular attributes that are intended to have some affect on the future. Precedent can therefore perform an important role in the development of a project, providing potential insights into the direction and motivation of participants. This is an especially important perspective in major design projects that involve public engagement and large amounts of public money.

The use of precedent is adopted in this paper as a method of approaching and interpreting a Parliamentary debate. The constituent parts of each precedent: the source; its attributes and its intended effects are identified, extending a model of frame creation proposed by Dorst (2015), and used to provide a clear way of identifying the context in which the precedent is used and what it appears to be used for.

2. Context

2.1 How Parliament works: debate as the design of society

In common with many representations of design processes (e.g. Valkenberg & Dorst, 1988 and Pahl & Beitz, 1986) the UK Parliamentary process follows a series of stages (shown in Figure 1) that begins with the announcement of the intended legislation and ends with the final approval that empowers the government to legally proceed with its plans.

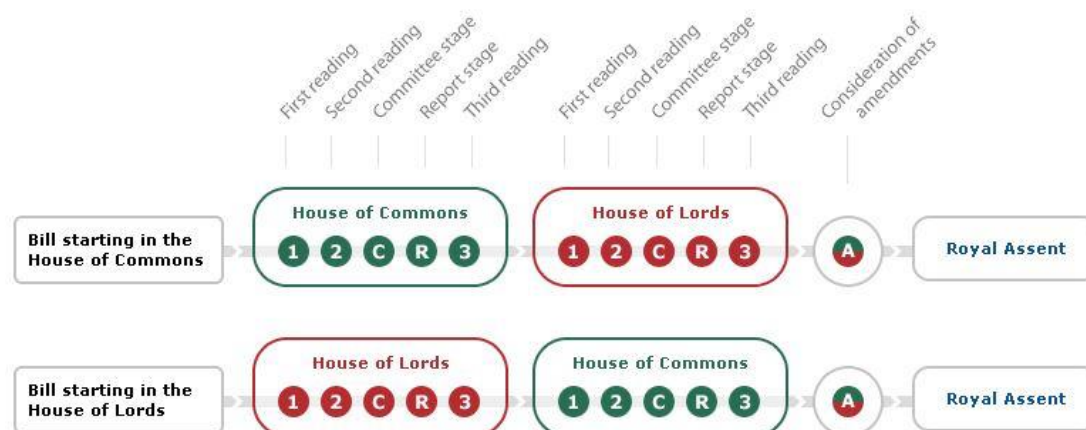


Figure 1 The passage of a bill through the UK Parliament (image: Parliamentary copyright)

A key stage of this process is the second reading of a Bill. This is, according to one of the standard texts on how Parliament works (Rogers & Walters, 2006), the first opportunity for the underlying principles of a bill to be subjected to scrutiny from elected members who have not necessarily been involved in the drafting of the proposals or the policy it expresses. The second reading is also the first stage in the Parliamentary process where a vote is taken to decide whether the bill can proceed to subsequent stages. The second reading then is the point where the future of a project is decided, not unlike a design meeting where the client is asked to sign off an underlying concept or work done to date. The importance of the second reading, and its parallel with design meetings, led to its selection for the study described in this paper.

Infrastructure debate

The subject of debate selected for this study is the proposed development of a new high speed railway line known as High Speed Two (HS2). HS2 is one of the largest major infrastructure projects to be planned in the UK for a number of years. The route connects four of the country's largest cities, running from London to Birmingham and then extending with two separate arms to Manchester and Leeds. A series of contested claims have been made for HS2 about its ability to address the problems it is intended to solve, including the capacity in the existing network, the need to increase the speed of journeys between the economic centres of the country, the likely success of claims made for it to relocate some of the economic activity out of the capital city of London and to enhance and ensure the UK's competitiveness in a global market.



Figure 2 The route of HS2 (image: Guardian Newspapers)

The proposed route (shown in Figure 2) runs through a large number of communities, including a protected area of the countryside, and affects a large number of residents. At a projected cost of £52 billion it also involves a considerable public investment. For these reasons the HS2 debate forms an important part of the government's plans for the country but is also controversial, difficult to resolve and accompanied by conflicting views over the principles upon which it is based. In many respects this debate resembles a classic design problem.

Debate data as a source of design research

The UK government records all debates of this kind and publishes them in a formal record of proceedings known as Hansard which are transcribed more-or-less verbatim as the debate takes place and then published as the official record. Debates are also recorded to video which allows any inconsistencies in the text to be compared with another source. The second reading of the HS2 Preparation Bill, used in this study, took place on 26 June 2013. The transcript of this debate comprises 3380 lines of text which represents four and a half hours of debate undertaken by 57 participants. Relevant sections of the debate referred to in this paper are excerpts from the full Hansard record that is available online.¹

¹ *House of Commons Debate*, vol. 565, cc. 335-409, 26 June 2013. Available online at: <http://tinyurl.com/l736hkq>. All excerpts in this paper are drawn from this source which is referred to as HoC, 2013 followed by relevant column number.

Method

This section introduces a method for approaching debate from a design perspective based on a model of framing as design process. It demonstrates how a specific characteristic of the design process, the use of precedent, can be seen as a framing process and how this framing process can be broadly seen in terms of design process that has a start and end state.

Identification of precedents in transcript

It is first necessary to identify precedents where they occur in the data. This begins with a close reading of the text, looking for any references to past projects or experiences that are used to inform the debate. An example of how the use of a precedent appears in the debate is shown in Excerpt 1 below where the positive impact of a prior project, in this case a number of iconic examples of Victorian engineering, is called upon to inform the current debate.

Iain Stewart: My hon. Friend is absolutely right.

To those who voice concern about visual intrusion on areas of outstanding natural beauty, I simply make the point that railway infrastructure need not be ugly—it need not be concrete blocks. Look at some of the fantastic pieces of railway engineering and architecture we have: the Forth bridge, the Glenfinnan viaduct, Brunel's bridges and tunnels—they have enhanced the landscape. I urge my right hon. Friend the Minister of State to make HS2 into an opportunity to showcase the

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best of British design and engineering, with bridges, viaducts and other infrastructure that show off and augment our landscape.

Excerpt 1 An example of the use of a precedent, in this case Victorian engineering, identified in a Parliamentary debate (screenshot from online source of HoC, 2013:c364)

Clarification of the context in which the precedent is used

The context of the precedent, as noted in 1.2 above, can be followed through the identification of its source, the attributes of that source that appear to be relevant to both the source and the target (which is in this case HS2), and the anticipated affect these attributes may have on HS2. Figure 3, below, shows the text from Excerpt 1 expressed in these terms.

source	attribute	effect
Victorian railway architecture and engineering	enhance the landscape	showcase the best of British design

Figure 3 The precedent of Victorian railways shown as a source, attribute and effect developed from Excerpt 1

Taking this one stage further, these three constituent parts of the precedent can be written out in a form that more clearly expresses the way in which the precedent is used and the shift in perspective that it introduces to the debate. This method is adopted from Kees Dorst's frame creation process, a reframing aid that helps designers engage with problems in social contexts. Dorst used a construct: "If the problem situation is approached as if it is...then...". (Dorst, 2015:78). This formulation is adapted here as a way of observing framing

in the specific form of precedents used in the debate. Based on Dorst's formulation of frame creation, this follows a general narrative template:

If a particular ATTRIBUTE of the current situation is approached from the perspective of SOURCE then we might see how this will AFFECT the present

This treatment of the example above is shown in Figure 4 below:

If we look at *the impact of railways on the landscape* (which is a concern of the opposition) from the perspective of *existing Victorian examples* (which are fantastic) then we can see that HS2 will *showcase the best of British design and engineering*

Figure 4 The elements of the precedent identified in Figure 3 represented as a reframing narrative

Restating the excerpt in this way allows the narrative that is developed through the precedent to be clearly identified. In this case the threat of intrusion is reframed as an opportunity to show off the country's design skills and the country itself. All of these stages are collected together in Figure 5 below and present the method of inquiry adopted in this paper.

To those who voice concern about visual intrusion on areas of outstanding natural beauty, I simply make the point that railway infrastructure need not be ugly - it need not be concrete blocks. Look at some of the fantastic pieces of railway engineering and architecture we have: the Forth bridge, the Glenfinnan viaduct, Brunel's bridges and tunnels - they have enhanced the landscape. I urge my right hon. Friend the Minister of State to make HS2 into an opportunity to showcase the best of British design and engineering, with bridges, viaducts and other infrastructure that show off and augment our landscape.		
<i>Iain Stewart (Milton Keynes South, Con), HoC, 2013:c363</i>		
source	attribute	effect
Victorian railway architecture and engineering	enhance the landscape	showcase the best of British design
If we look at <i>the impact of railways on the landscape</i> (which is a concern of the opposition) from the perspective of <i>existing Victorian examples</i> (which are fantastic) then we can see that HS2 will <i>showcase the best of British design and engineering</i>		

Figure 5 The Victorian railway precedent represented in terms of the relevant context and the reframing that is taking place

The next section applies this method and the representation it generates to a series of precedents found in the transcript of the same debate.

Results

Frequency and sources of precedents found

During the course of the debate 85 instances of precedents were found in the transcript. The full set of precedents found in the debate transcript are listed in Figure 6, below, which shows the range of different sources from which precedents are drawn.

Precedent source	Frequency
HIGH SPEED RAIL projects already developed or planned in other countries	22
HIGH SPEED ONE (HS1) - the existing high speed rail line linking London with the Europe via the Channel Tunnel	16
VICTORIANS - developed the original UK railway network	9
WEST COAST MAINLINE - the mainline route connecting London with the North West of England and Scotland	7
CROSSRAIL - a major infrastructure project connecting East and West London	6
MOTORWAYS - M1 and M25	5
JUBILEE LINE - an extension of the London Underground to the docklands, opened in 1999	3
OLYMPIC GAMES - held in London in 2012	3
THAMESLINK - the mainline cross-London railway from Bedford to Brighton	2
BEECHING - the 1963 rationalisation of the railway network	1
BRITISH RAIL's 1990 speed test on the east coast main line	1
LONDON BUSES - commissioned by Transport for London in 2012	1
MANCHESTER AIRPORT - second runway	1
Previous high spend CAPITAL PROJECTS - unspecified	1
PRIVATISATION of the railways - enacted by the Conservative Government in 1993	1
TOWER OF LONDON - an eleventh century castle in central London	1
Total number of instances	85

Figure 6 Precedents from the second reading of the HS2 Preparation Bill showing sources from which they are drawn and the frequency with which they occur. It is unsurprising that the most common precedents called upon during a debate on a proposed high speed railway are other examples of other high speed rail projects.

As the debate is about the development of a new high speed railway line it is unsurprising that other high speed railway projects are referred to. The other examples listed give an indication of the range and volume of precedents that are used in the debate and also the range of contexts from which they are drawn. Any one of these precedents and the projects they refer to could be used as a source for an analysis of the function they can be seen to serve in the debate.

Of these projects, High Speed One (HS1) is the only existing example of a high speed railway project in the UK. This line connects London with Europe via the Channel Tunnel and, completed in 2007, is the most relevant precedent in terms of a combination of its use of a similar technology, its geographical proximity and recent timeframe. Because of this relevance a selection of the instances of HS1 as a precedent in this debate will form the basis of the analysis that follows. This analysis seeks to test in more detail the methodological

approach outlined above and in doing so to explore the potential of this kind of approach to debate from a design perspective

The planning process

The Parliamentary process that HS2 must follow, as shown in section 2 above, is the same followed by all legislation, including other major infrastructure projects such as HS1. The amount of time needed for HS1 (and Crossrail, another complex infrastructure project) to pass through this process is referred to in the excerpt shown from the HS2 debate in the Figure 7 below.

Despite its inclusion in the Queen's Speech, Ministers cannot even guarantee a Second Reading for the hybrid Bill in this Session, leaving just one year to secure its passage through both Houses. It took two years and one month to take the hybrid Bill for High Speed 1 through Parliament, and Crossrail took three years and five months. Neither of those schemes was on the scale, or came with as much controversy, as this new rail line. The Government's inaction in the past three years requires them to rush the Bill at the end of this Parliament. <i>Maria Eagle (Garston and Halewood) HoC, 2013:c350</i>		
source	attribute	effect
HS1 numbers	time taken to pass Bill through Parliament	not enough time to have proper debate
If we look at <i>the parliamentary process</i> from the perspective of <i>HS1</i> then <i>HS2</i> , with its scale and controversy, will not be given a proper debate by a Government who hasn't managed the project properly		

Figure 7 An excerpt from the HS2 debate showing reference to previous infrastructure debates and the Government's ability to manage the process.

In this sequence the participant, a supporter of HS2 but not a member of the Government, is using HS1 to demonstrate how long it will take for HS2 to gain approval. The lower level of complexity and smaller amount of controversy of HS1, it is claimed, still led to a debate that took twice as long as the amount of time allocated for HS2. This comparison is used to demonstrate that the Government has not learnt sufficiently from this precedent. As a result of the Government's inactivity the debate is seen to be rushed and the Government is, by implication, inept at managing the process. This precedent shows HS1, in terms of the scheduling of Parliamentary business, as a shortcut that was not followed in time. This is also used to identify a distinction between the Government and the participant making this speech who seeks to show their support for HS2, they want to see it happen, but who also does not support the Government and does not want to see them re-elected.

The need for HS2

One of the main justifications for building the HS2 line is that the existing transport network, including road and rail, is congested and that the railway network running north from London will reach full capacity within a decade. The precedent in Figure 8 below uses the number of passengers travelling on HS1 to look at the capacity question from a different angle.

<p>I must agree. Only a very small percentage of people use trains regularly. As the Transport Secretary has said, 10 million people travel annually on HS1, or about 30,000 people a day; another, say, 1.5 million people travel on all the other trains. What is the number of those not travelling? Practically everyone else in the country—59 million, say. That is the difference: 1.5 million on the one hand and 59 million on the other.</p> <p style="text-align: right;"><i>Mr Andrew Turner (Isle of Wight) HoC, 2013:c390</i></p>		
source	attribute	effect
HS1 passenger numbers	passenger numbers as proportion of population	More trains are unnecessary
<p>If we look at <i>passenger numbers</i> from the perspective of <i>HS1</i> then HS2 is not necessary.</p>		

Figure 8 An excerpt from the HS2 debate using passenger numbers from HS1 to question the need for a new railway line.

By identifying rail passengers, based on the number of people travelling on HS1, as a discrete group of the population, this participant infers a much larger group of people who do not use trains. This challenges the dominant narrative that justifies HS2 in terms of an absolute, and soon to be reached, capacity of the existing network which argues that more trains are needed because more will people want to use them. An alternative perspective is developed in this excerpt which uses passenger numbers from HS1 to take a more a relative view of train users as a proportion of the overall population. In doing so this questions the need to build a railway for the benefit of this relatively small number of people.

Making changes to a controversial route

The precedent shown in Figure 9 calls upon the Ministerial prerogative that was employed during the planning of HS1 whereby the Transport Secretary of the day had intervened to divert the line away from the controversial route that was originally proposed.

<p>I would say to her, and to my right hon. Friend the Secretary of State, that they should look at the process that was involved with HS1. The then new Secretary of State, my right hon. and learned Friend the Member for Kensington (Sir Malcolm Rifkind), very late in the day, called in all the evidence and changed the route. That route, which had been designed by British Rail, went right through south London and was going to blight large numbers of houses, and he changed it at the very last minute. If he had not done so, Stratford International would never have come into being and the Olympics would never have taken place. I say this to my right hon. Friend: do please look at the route, because if we are spending this vast amount of money, let us, as a nation, get the maximum out of it.</p> <p style="text-align: right;"><i>Geoffrey Clifton-Brown (The Cotswolds, Con) HoC, 2013:c392</i></p>		
source	attribute	effect
HS1 route	last minute Ministerial intervention to change the route	reduced blight and maximised the benefits
<p>If we look at <i>route selection</i> (which for HS2 has already been made) from the perspective of <i>HS1</i> (where the Minister made a late and radical change to the one originally proposed) then it's not too late to change the route of HS2 to make it better.</p>		

Figure 9 An excerpt from the HS2 debate showing HS1 as a precedent to encourage the Secretary of State to intervene and modify the route.

The ramifications of this action are then developed to suggest that it produced unintended benefits that brought the Olympic Games to London in 2012. This is presented as an example that shows how to diffuse controversy and at the same time bring about wider benefits. These benefits are identified as applying to the whole nation.

Managing environmental impact of HS2

In a similar function to the precedent of Victorian railway design described above, the excerpt in Figure 10 shows HS1 being used as a precedent that demonstrates the principles of good design that should be followed when the railway is eventually built.

I am grateful to my hon. Friend for that intervention. I took the opportunity to visit the route of High Speed 1 and saw the noise mitigation measures that had been put in place. The noise of the trains is not much more audible than that of an A road or other minor piece of infrastructure <i>Iain Stewart (Milton Keynes South) HoC, 2013:c363</i>		
source	attribute	effect
HS1	Noise mitigation measures	High speed rail is quiet
If we look at <i>noise mitigation measure</i> from the perspective of <i>HS1</i> then HS2 will be almost as quiet as a road		

Figure 10 An excerpt from the HS2 debate showing HS1 as a precedent to demonstrate the low noise impact that high speed lines have on the environment.

In this excerpt the measures used to mitigate against the noise of the railway line are called upon to inform how this should also be done for HS2. This is a reframing process that shifts HS2, usually described as a major piece of infrastructure, into something inaudible and minor. This shift is achieved through the proposed adoption of practices employed in HS1.

The benefits of HS2

The relationship between HS2 and the potential capacity problem in the railway network was noted in the precedent in section 4.3 above. The precedent in Figure 11 below focuses on a second major justification used for HS2 that promotes the benefits of the high speed capabilities of the new railway line and the shorter journey times that these speeds provide.

<p>The Secretary of State described the business situation in Kent, an issue that, as a Kent MP, I should like to touch on. It is impossible to imagine how east Kent can be regenerated without the benefits that High Speed 1 brings. I sit in meetings with the regeneration group that looks at the east Kent regional growth zone, and selling the benefits of High Speed 1 and the lower journey times into London is the single biggest advantage we have. As the Secretary of State pointed out, the HS1 line runs only as far as Ashford into London; the rolling stock running from Folkestone, Dover and Canterbury into Thanet is also a massive source of regeneration.</p> <p style="text-align: right;"><i>Damian Collins (Folkestone and Hythe) (Con), HoC, 2013:c403</i></p>		
source	Attribute	effect
HS1	lower journey times into London	a massive source of regeneration
<p>If we look at the speed of journeys into London from the perspective of HS1 then HS2 will be a source of regeneration</p>		

Figure 11 An excerpt from the HS2 debate showing the regenerative effects of faster journey times into London.

This participant suggests that the high speed connections into London provided by HS1 are a major source of regeneration in the areas served by those services. This proposes a direct correlation between the high speed of the passenger services proposed for HS2 and the economic growth that is predicted for the areas around its stations and services that connect to them. The economic impacts of HS1 are called upon in several other instances through the course of the debate. Underlining the controversial nature of the debate, the same precedent is also used by an opponent of the project to demonstrate that the high speed connections into London provided by HS1 have made no impact on the deprived areas of Kent they serve (HoC, 2013:c389)

Participants' reflections on their own precedents

The final example in this section shows a more reflective position adopted by participants. In the excerpt in Figure 12 the use of precedents as a way of exploring the debate is questioned by identifying fundamental differences between HS1 (along with two other precedents that are found in the HS2 debate) and HS2.

<p>We have also heard comparisons with the motorway network, the Jubilee line and HS1. They were all very much resisted at the time, but every single one of them was unique in its own way. For motorways, there is a junction every few miles, so everybody benefits from them; they undoubtedly promote growth in our economy. Likewise, the Jubilee line has many stops, and therefore benefits a huge swathe of the population. HS1 is unique in the sense that it was the link to mainland Europe. HS2 is none of those things; it is a decision that we have taken in isolation.</p> <p><i>Andrea Leadsom (South Northamptonshire, Con), HoC, 2013:c380</i></p>		
source	attribute	effect
HS1, Jubilee Line, Motorways	all were resisted and eventually built but also had unique attributes	HS2 debate should not depend on precedents
<p>If we look at <i>how we are debating HS2</i> from the perspective of <i>numerous different precedents</i> then we can see that because of the differences between them <i>these precedents are irrelevant</i>.</p>		

Figure 12 In this excerpt the participant explicitly lists the reasons why other infrastructure precedents are not relevant to the debate about HS2.

These differences, it is suggested, make any comparisons that attempt to draw upon these precedents as irrelevant and thereby questions the validity of the decision making process that includes them.

Discussion

The selection of precedents examined above follows the transcript of a single debate from the Parliamentary record. They show how a single precedent, from the many examples identified in the debate, is used to present a different perspective on the Parliamentary procedure, the need for a new rail line, the controversy that the new line provokes, the way that the line should be built and the benefits that it will bring. The participants are also shown to reflect on how precedents have been used in the debate. Having described these examples of precedent in detail, using the method proposed, the following discussion takes a broader view of how they work within the debate and proposes a set of functions they can be seen to serve.

The stages described above provide a method for establishing where and how precedents are used in a debate. The reframing narrative, based on Dorst's view of framing as a design process, resonates with earlier notions of design and framing identified by Schön. As a reframing process that calls upon prior examples, it also resonates with the notion of precedent developed in design literature. There is a notional identification of the before and after state, a general definition of design recognised by many authors. Looking at the use of precedents in this way appears to be a useful way of approaching a debate. However, despite these connections with design literature this does not, in itself, necessarily identify the use of precedent as a "design" process.

To examine this connection in more detail, in the case of the first example shown above, the precedent of the Victorian railway functions as a reframing device that invokes a shift in perspective. It also operates as a clear design precedent, calling upon the aesthetic qualities

of earlier designed objects that will provide a shortcut from the potentially “ugly” to the demonstrably “fantastic”. Finally, there is an element of team identification within this excerpt where the participant draws a distinction between the ugly concrete blocks that are envisaged by opponents to the railway and a more sophisticated aesthetic approach that might be adopted by supporters of HS2. This identification goes further as it takes account of a wider notion of Britain as a nation of designers and engineers and Britain as a landscape that, the participant urges, should be shown off. The identity of HS2 supporters is thereby, through the use of this precedent, connected to the geographical fabric of the nation.

In other examples of HS1 identified in these excerpts the precedent was used as a direct shortcut to a solution to the problem of, for example, noise mitigation. Similarly, the problem of moving the HS2 bill through Parliament in a timely fashion and the problem of dealing with controversial opposition to the project were both also informed by reference to similar problems raised and dealt with in the earlier project. This use of precedent is similar to the use of design precedents reviewed in section two that call upon prior designs to help move existing projects forward.

The precedents above also demonstrate the characteristic of precedents that recall previous projects in order to consolidate the identity of the design team. This function is not identical to that seen by Lawson, where previously shared projects bolster the team identity, perhaps because the notion of the team in Parliament is more fluid and less well defined than in an architect’s practice. However, there is a related function where groups are identified with particular precedents and particular actions which consolidate an identity around which supporters and opponents of HS2 can gather. This manifests itself along party political lines, where the Government is accused of being inept, and also along much broader fault lines in society between, for example, the 59 million people who, it is claimed, do not use the railway network or the whole nation who benefitted from the Olympic Games and might then also benefit from a similar change in the route of HS2.

In addition to these similarities with the design shortcut and the design team building function of precedents there is a further characteristic that emerges from these examples, and others that can be seen in the full transcript. It is the nature of major infrastructure projects, such as HS1 and HS2, that large amounts of money and effort are needed to implement them and that until this is expended it is not possible to make key appraisals about the project such as how long it will take to build, how long it will take for any benefits to be delivered by it, and how much it will cost to get to that point. In this respect these projects, already controversial and intractable, are characteristic of the wicked problems of Rittel and Webber to which there is no immediate test of a given solution and every solution is a “one-shot” operation (Rittel & Webber, 1973:163). The conventional reiterative design model of prototyping is not possible on projects of this scale - there is no prospect of building a cut down version of a 120-mile long railway line between two major conurbations that could adequately appraise its performance or potential success or failure. While there is scope for engineers and planners to develop software models that predict behaviours and visualise the way it looks when completed, these models are idealised and contested. This

last point is demonstrated in the above examples where the accuracy of capacity forecasts and projected economic benefits are questioned.

Precedents referring to concrete examples of previous practice are presented in the debate as an alternative to those contested models and to the impossibility of the prototype. Such precedents are invoked at will, at no cost, and they demonstrate specific attributes that can be called upon to inform the project under debate. They are created out of a shared knowledge of projects that are well known and they allow participants in the Parliamentary debate to explore futures that have yet to be created. The identification of the role of precedent as a kind of futuring device, as a virtual prototyping tool, further demonstrates the potential for design analyses of Parliamentary debate. This kind of analysis has the potential to generate insights into the detailed mechanisms through which debates progress, a broader vision of how nations are built and a methodological perspective on the way that design can be used to engage with that process.

A final point to be made is the nature of the data sources used. If we accept that these debates can be seen as a design process then these transcripts, and the video recordings of the debate that exist in the same archive, can be thought of as a rich source of design data readily available to be explored from any number of other design perspectives. Used in this way the Parliamentary archive can be seen as a socio-political stablemate of the common datasets based on design meetings found in more conventional design studies (e.g. Cross et al., 1996; McDonnell & Lloyd, 2009).

Conclusion

In conclusion, this study has shown that the adoption of a design perspective provides a way of interpreting debate, a kind of “design analysis” that offers insight into how the participants engage in the debate and how it progresses. This design analysis does not replace established modes of inquiry into Parliamentary activities such as the kind of Critical Discourse Analysis employed for example by van Dijk and others (Wodak & van Dijk, 2000) or ethnographies of the Houses of Parliament such as that undertaken by Emma Crewe (Crewe, 2015). However, the results reported here suggest that using design as an analytical approach can generate comparable or complementary insights. Aside from this analytical innovation the work also proposes that Parliamentary activity can be viewed as a design process and that the Parliamentary record can be seen as a source of design data. This last point has implications for the support of ongoing design studies, including the shared dataset projects of the Design Thinking Research Symposia, where access to naturally occurring real world design situations might prove difficult, expensive or methodologically problematic. The method of analysis and the treatment of data proposed in this paper does then, we argue, forge stronger links between design, research and society.

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Exposing charities to design-led approaches through design research

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Abstract: This paper discusses the value of using design research to expose Voluntary Community Sector (VCS) organisations to design-led approaches. The discussion is based on the findings from two qualitative, exploratory doctoral inquiries into the relevance and applicability of adopting a Design for Service (DfS) approach to effect transformation in VCS contexts. Using Action Research and a case study structure, the DfS approach was introduced and applied within four VCS organisations in succession. The research findings have provided valuable evidence and insight into design's capacity to incite transformational change, and the challenges of doing so, at a critical time for the sector.

Keywords: public services; voluntary sector; design for services

1. Introduction

Following the global financial crisis of 2008, the UK's Coalition Government signaled its intention to radically reform public services (HM Government, 2010). This drive to reduce public spending, decrease inefficiencies, decentralise provision and enable user choice has had far-reaching impact on public services. It has impacted: families and children; jobs and welfare; the justice system; and public health (HM Treasury, 2010), and thus has had a significant impact on VCS organisations offering such services.

This challenging operating environment had a considerable impact on VCS organisations' abilities to continue to provide quality services; none more so than those operating in the North East of England who, because of their disproportionate reliance on public money, saw 73% of their VCS community suffer a reduction in funding (Wilding, Kane, & Clark, 2011, p. 24). The consequences of these actions led to 40% of the region's VCS organisations making redundancies, and over a quarter decreasing the number of services that they provide (Voluntary Organisations' Network North East, 2011, p. 12). Despite this considerable



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reduction in capacity, the third sector was trying to cope with a sizeable increase in service demand (Voluntary Organisations' Network North East, 2011; Wilding et al., 2011).

Simultaneously, policies such as Putting People First (Department of Health, 2007) and Open Public Services (HM Government, 2011) meant statutory contracts demanded person-centred, tailored provisions, rather than traditional offerings. VCS organisations were therefore being asked to deliver radically different services, with drastically reduced capacity and resource.

This same transformation agenda affecting the VCS was acting as a catalyst for the engagement of designers in public settings (Schaeper, Maher, & Baxter, 2009). Programmes of work such as the *Public Services by Design* project (Design Council, 2010), Open Policy Making within the UK Cabinet Office (Buchanan, 2014) and the creation of the *experience based design* (ebd) approach for use in the NHS (Bate & Robert, 2007) provided valuable examples of the impact that design could have on services and systems in the public sector. National initiatives such as Dott 07¹ (Thackara, 2007) and Dott Cornwall² (Relph-Knight, 2011) also demonstrated at an international level that design-led approaches could result in new services and systems that were co-owned by the community they benefitted (Relph-Knight, 2011; Tan, 2012; Thackara, 2007).

Those experiences suggested that a Design for Service (DfS) approach could be of value to VCS organisations trying to make the changes dictated by new policies and a volatile fiscal climate. However, given the drastic cuts in funding from both voluntary and statutory sources (Kane et al., 2014), there was little resource for VCS organisations to engage in traditional contractual relationships with designers. For those that did have available capital, a predominant focus on using design in the public sector meant there was little evidence of the impact that it could have specifically on VCS organisations, making it a high-risk engagement.

Academic design research and teaching projects have long been seen as a way of testing out new approaches and developing concepts in exchange for research data, teaching content, publicity or funding (Reeves, Redford, & McQueen, 2010). Recent programmes such as DESIS International Labs have attempted to actively involve undergraduate and postgraduate students in live social innovation projects to promote sustainable change (DESI Network, 2012). However, design research in social settings remains immature (Armstrong, Bailey, Julier, & Kimbell, 2014). Added to the need for more academic presence in this area, academic institutions are now asked to demonstrate the impact of their research on society. The new system for assessing the quality of research in UK higher education institutions, the Research Excellence Framework assessment, asks for evidence of the impact of the research activity, including any impact on society (Research Excellence Framework, 2011).

¹ Dott 07 (Design of the times 2007) was a national initiative of the Design Council and the regional development agency One North East. It was a year of community projects, events and exhibitions based in North East England, exploring how design could support sustainable and inclusive life (Thackara, 2007)

² As above, but with practical projects run in Cornwall in partnership with Cornwall Council, University of Falmouth and TSB (Relph-Knight, 2011).

Design research doctoral inquiries therefore offer a unique opportunity for VCS organisations to work with a designer outside of a traditional fee-paying structure, as well as offering significant benefits to the academic institution by building valuable knowledge and demonstrating research impact.

This paper will describe the outcomes of initial applications of using a DfS approach in four VCS organisations through two doctoral inquiries; one completed in 2015 and one ongoing. The paper will describe how all of the charities involved reported positive outcomes from using the approach, which include: more customer-focused services; financial gains; and organisational learning. It will also detail how the use of design on a systems level in two of the organisations resulted in transformational change, which has enabled the charities to thrive in challenging times. The paper will also suggest that design researchers have a continued, crucial role to play in exposing VCS organisations to the value of design and extending our knowledge of the impact of the approach in this important context.

2. Methodology

Although the paper considers two separate doctoral inquiries, the research aims and methodologies are largely similar. Given the duality of the aims of both research programmes (delivering outcomes to the VCS organisations involved, and creating new knowledge for the various audiences of the study), the inquiries needed to build knowledge through the *active* application of design, but in a rigorous way. As these studies aimed to understand the value of a DfS approach in a VCS organisation, it can be seen to be addressing both *ontological* and *contextual* questions; considering what design is good for, and how it interacts with the world in this context (Steinø & Markussen, 2011).

To answer these questions in a way befitting of the capacity issues afflicting the VCS organisations, the designers needed to be based within each organisation as both practitioners and researchers. As a result, Action Research (Lewin, 1946) was selected as the predominant methodology, supported by a case study structure (Yin, 2003) to ensure generalizable theory. In the VCS, where contextual factors such as funding and commissioning have proven to be problematic for existing change models, Action Research has been considered an appropriate approach because it is context-specific (Kellock Hay, Beattie, Livingstone, & Munro, 2001).

As a researcher operates within an organisation, it is possible to gain an understanding about the realities of the organisation and respond in an appropriate way (Greenwood, Whyte, & Harkavy, 1993; McTaggart, 1997). Although the level of change that can be brought about by Action Research is debated (Reason & Bradbury, 2001), the methodology pursues practical solutions to problems in order to improve situations, aligning with the societal change ambitions of the DfS approach (Burns, Cottam, Vanstone, & Winhall, 2006; Manzini, 2011). Reason (1998, p. 71) defined Action Research as having a double objective; the first to produce knowledge and action useful to a community of people, with the second aim to empower those people at a fundamental level by helping them to construct and use their own knowledge, which aligns with the dual aims of this research study.

However, given that Action Research develops 'local theory' (Elden, 1983) based on the particular individuals and contexts with which it takes place, "it cannot be guaranteed that results can be made richly meaningful to people in other situations" (Checkland & Holwell, 1998). To improve the validity of the findings, it was necessary to adopt a second complementary methodology: a case study research design. A case study research design (Yin, 2003) adds detail to the methodological strategy by providing an extended look at the Action Research process. The DfS approach was applied in four VCS organisations, which were considered as cases in a multiple-case case study structure (Yin, 2003); Charity A; Charity B; and Charity C in the first doctoral inquiry; and Charity D in the second.

Each VCS organisation chosen as a case was a registered charity or other formally constituted VCS organisation with an income from charitable activities between £100,000 and £1 million per year; an indicator that an organisation will be at risk as statutory support diminishes (Voluntary Organisations' Network North East, 2011). They also had to be currently offering, or have a contract to offer public services, and looking to evaluate, change or expand these in some way in the future, in order to undertake design activity in the time constraints of the research. The four charities also had to have differing charitable aims and customer bases, so that the DfS practice was not guided by any previous engagement, as is required by the Action Research approach (Lewin, 1946, p. 38; McNiff & Whitehead, 2011). The four organisations, along with a brief description of the collaborations' aims, are described below:

- Charity A is a local organisation that is part of a UK federation. They provide mental health and wellbeing services across three boroughs in North East England, many of which are on behalf of a local council. In this project setting, the designer was asked to help the organisation consider what services they should provide in a new geographical area.
- Charity B is also a local charity registered with a national federation. Operating in one borough in North East England, they provide a variety of community education services to all ages. In this project setting, the designer was engaged to help the organisation improve its earned income, particularly focusing on how it could improve its membership system, which offered discounts on fitness, arts and children's services to the local community.

- Charity C is a national charity based in North East England. Their mission is to engage children in reading and they offer a variety of services, both directly to the public and through education institutions, that address this aim. Here, the designer helped the charity to consider the experience that their services provided and how it could be improved to better meet the aims of the organisation.
- Charity D is a local charity based in North East England. The organisation provides a range of artistic services for people with mental health issues partly funded through a local council. The designer helped the charity to redefine its services within the context without alienating existing service users.

In each of the four charities engaged in the studies, the designers worked with a variety of stakeholders; staff and volunteers who administer services directly to clients; middle management; and executive leadership. Periods of action research were conducted within the charities for two months or an equivalent amount of time. This length of study allowed data to be collected and ensured that the researchers did not place burden on the organisation's capacity.

The Action Research design activity was the primary data source for the case study. Through Action Research, research participants were engaged in creating, making, commenting on and shaping existing systems. Data was collated from 31 project meetings (Nimkulrat, 2007), 6 workshops and 54 design outcomes (Zimmerman, Stolterman, & Forlizzi, 2010). These data sources were also supported by 25 semi-structured interviews (Robson, 2011) pre- and post-collaboration with Charities A, B and C, as well as 108 reflection-on-action logs (Schön, 1983).

The data collection strategy was designed to capture data from various project stakeholders in each case (e.g. Chief Executive, Business Development Manager etc.), at various stages of the project timeline (before, during and post-collaboration). The multiple participants' perspectives helped to build knowledge about the perceived value of design to different VCS stakeholders, whilst the different stages of the project helped to build knowledge about how that changes over time. As the designers' embedded position in the organisations could also lead to criticisms of bias (Checkland and Holwell, 1998), post-collaboration data was gathered by an independent researcher to ensure honesty and parity.

3. Data analysis

Within the collaborations, the designers acted as both researchers and practitioners. To reduce any influence data analysis might have on the designers' practice, analysis commenced only once the data collection for each study was completed. As such, only the data from the first doctoral inquiry has been systematically analysed using the process outlined in this section. As the collaboration with Charity D is ongoing, the results of the analysis were compared with reflection-on-action logs from Charity D, allowing data to be

compared and contrasted with the derived patterns in order to present the findings considered in Section 4.

The data collected in Charities A, B and C (31 project meetings, 6 workshops, 54 design outcomes, 25 semi-structured interviews and 108 reflection-on-action logs) was analysed using a general inductive analysis approach (Thomas, 2006) to build theory directly from the data, without being influenced by pre-defined goals. The data was taken through four stages of analysis using both inductive and abductive logic in order to construct theory: data-cleaning; first-stage coding; building multiple coding collections; and identifying themes and patterns.

In stage one, data-cleaning, all data was converted into a common format (Miles & Huberman, 1994, p. 51). All data was then collated for each project setting (including interview transcripts, project meeting summary sheets, reflection-on-action logs and other project correspondence), printed and filed in chronological order. This enabled the researcher to become familiar with the content, themes and events described during a close reading of each data set.

The second stage (first-stage coding) continued the process of data-cleaning (Rahm & Do, 2000) by using the four aims for the study as evaluation objectives to guide hand coding of the data, further refining the pool of data relevant to the study's aims. Throughout the data, when a critical incident that related to one or more of the evaluation objectives was identified, it was first attributed to the relevant objective(s) using a number that correlated to each question (e.g. '4' for How was the DfS approach established in the VCS organisation?), and then encoded (Boyatzis, 1998). The codes were simple and clear, aiming to capture the qualitative richness of the phenomenon (Boyatzis, 1998, p. 1). Once this first-stage coding was complete, all relevant excerpts were copied onto Post-It notes to enable manual comparing and contrasting of the data.

Despite these primary stages of data-cleaning, there were still approximately 4,000 excerpts of text relevant to the research. Stage three of the process was therefore to create multiple coding collections (Guldbrandsen, 2006, p. 56) rooted in the original context. To do this, each excerpt was considered in a matrix, which placed time (pre-project set-up, project, and post project reflection) on the horizontal axis and stakeholder (Designer, Chief Executive, Service Manager, Business Manager etc.) on the vertical axis. Where commonality was spotted within a quadrant of the matrix, similar quotes were grouped together and encoded. The fourth and final stage was to compare multiple coding collections (Guldbrandsen, 2006, p. 56) within and across stakeholders, timelines and cases to isolate common categories. This was enabled by bringing together the photographs that captured the essence of a collection related to a specific evaluation objective (four in total) and in a specific case study (three in total) to create an image that could be viewed in detail (see Figure 1).

Each image (there were 12 in total) showed the multiple coding collections related to an evaluation objective across the case study timeline e.g. multiple coding collections for evaluation objective how in Charity B, as in Figure 1.



Figure 1: Screen shot of compiled image showing an example of multiple coding collections

These common categories were then grouped and reduced to identify themes (Silverman, 2006, p. 307). These final themes were then analysed to derive patterns (Reichert, 2007, p. 221). With each of the patterns, a process of correlating the theory with existing literature, as well as reflecting back on the original data, ensured the reliability of the findings.

4. Findings

4.1 The outcomes of using design in a VCS organisation

The foundations of the findings presented here are based on the diverse outcomes reported by each charity, which are described in brief in Table 1 below. Please note that only outcomes that the stakeholders attributed entirely to the design activity have been considered and presented here.

Table 1 Design activity and associated outcomes in each charity.

Charity	Design Activity	Outcome/Impact
Charity A	New system vision infographic	Used to shape new staff roles, mission statement and policies. Submitted as part of a successful £500k grant application.
	Service customer journey and prototype touchpoints	Used to co-design and test service proposition. Resulted in radically different service model.
Charity B	Co-design workshop and findings report	Findings helped to shape the service to be more customer-focused. Report submitted as part of a successful £190k grant application.
	Brochure prototypes with new pricing and membership structures	Used to co-design new pricing and membership structures with key stakeholders. Resulting structures were rolled out and resulted in an increase in memberships.
Charity C	Visitor experience report and customer experience maps	Used to share findings of service experience with key stakeholders to define project focus. Maps used to

		train new staff on the diversity of customers and their varying needs. Findings contributed to two successful grant applications totalling £1.9m.
	Idea generation workshops and summary of ideas	Used to generate new concepts to address the welcome and exit at the visitor centre. Shared ideas to encourage ownership amongst teams and encourage quick changes.
	Service prototypes	Prototypes co-designed with teams were rolled out over a holiday period to test their impact at a busy time. Resulted in £50k increase in earned income, as well as better customer feedback.
Charity D	Co-design service environments in four workshops and a summary report	Co-designed outputs made visible key attributes of the service resulting in services that closer match user expectations. Part of this work directly supported a successful grant application.
	Concept generation activity contributing to a 5-year plan for the organisation	Co-designed concepts from the workshop were selected to form a strategy, leading to a service model based on extensive evidence.

The main outcomes for charities involved in the studies were (1) more customer-focused services and (2) organisational learning.

All four charities involved in the research reported more customer-focused services as a direct result of using a DfS approach. In the completed doctoral inquiry, all of the newly designed services were still in use 12 months post-collaboration. Furthermore, Charities A, B and C leveraged a total of £1.2 million in grant funding by being able to clearly articulate and evidence that their newly-designed services met user need in a desirable, efficient and effective way. The study also underpinned Charity C's successful application for a long-term contract, bringing the total financial impact of the studies to £2.6 million.

More significantly for all communities involved, the outcomes from the studies have shown that design can also have a *transformational* impact on a VCS organisation. In Charities A and C, Design impacted on all levels of the organisation, including staff roles, organisational policies, and mission statements. These changes were marked enough to be considered transformational by all stakeholders. Charity D is considering becoming constitutionally user-led in response to design activities, which is a radical shift within the organisation; however,

it is yet to be seen whether this leads to the transformation of the charity. The following sub-sections describe how these outcomes were achieved:

4.2 Designing challenge

To achieve the transformational change required of the sector, it is argued that a designer must question the fundamental assumptions, norms and behaviours of an organisation (Junginger & Sangiorgi, 2009, p. 4345). Analysis shows that this was a key role of the designer in all four organisations. For example, in Charity A, the designer's questioning of the current model of delivery prompted the service manager to experience a 'light bulb' moment, where she recognised that there was no reason that services should not be time-limited;

"I've never even thought about it before and now I'm like 'whoah controversial!' but, yeah... I feel like it's a light bulb moment really isn't it?"

This realisation formed the foundation of their transformational shift to time-limited partnerships between organisation and service user to set expectations, reduce dependency and encourage progression from their support.

The idea that Charity A's services should be ongoing was an example of "givens or truths... held so strongly that they are no longer questioned nor even consciously thought about" (Ott, Parkes, & Simpson, 2003). There was evidence that the designers challenged similar assumptions in all four of the charities, both through questions, but also through activities such as ethnography, customer interviews and design workshops. Through these activities, the designers demonstrated that services could be presented, offered or delivered in a different way. This had an impact on how stakeholders viewed their services, acting as a foundation for the design activity in each case to move forward.

4.2 Co-creating visions

Data in all four charities showed that stakeholders' visions were often limited by their knowledge of the service and systems; they struggled to stop imagining "what exists" and start imagining "what could be". Therefore, a key role of the designer in the VCS contexts was to challenge the existing, in order to present an alternative future.

During design activity, the designers used methods and tools to help co-design alternative futures that addressed some of the underlying issues uncovered through the prior activities (Tan, 2012). In Charity A, the concept of promoting progression from their services was then used to suggest how that could be realised as both a service, and as an organisation-wide initiative. In Charity C, a new vision was entirely co-designed by staff using frames such as 'what is a fairytale welcome?' to generate ideas and insights that resulted in a different way of viewing areas of their visitor centre. In Charity D, by considering how progression into and from their services might be considered, the organisation was able to highlight a number of issues with existing services to address those issues going forwards.

Design was key to co-creating visions of “what could be”; using tools to help stakeholders shape alternative systems, but also to enable the shared understanding of the alternative visions, and the insights that underpinned them. Tan (2012, p. 266) describes this as using design as both methodology and medium. In Charity A and D, design methods were used to capture insights from current and potential service users and translate that into ideas that would address the underlying issues. The medium of design was used to communicate how these distinct service components would combine to create a progression-focused service. Figure 2 is a diagram created to improve understanding amongst all project stakeholders of a service concept in Charity A. This visualisation allowed the stakeholders to suggest changes and additions and an iteration of this strategy diagram was also used to apply for their successful BIG Lottery Reaching Communities award.

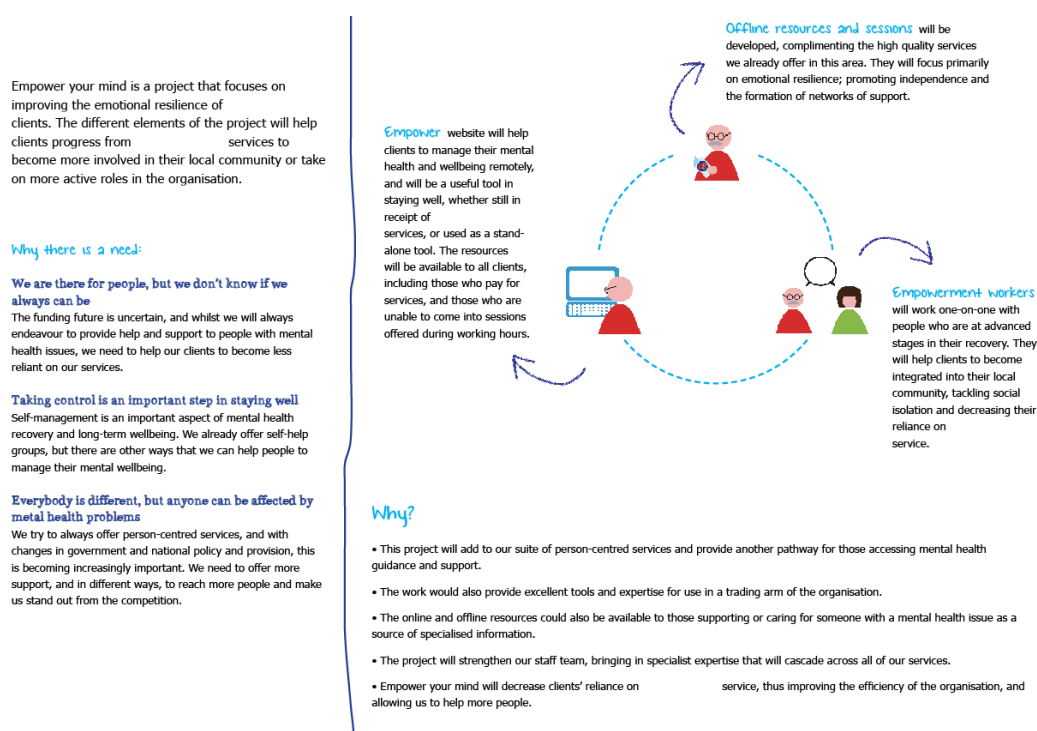


Figure 2: Strategy diagram for 'empower your mind' project (anonymised)

A significant characteristic of the relationship between the designers and the VCS organisations was the designer's role as both challenger and visionary. This duality was successful in supporting staff and stakeholders to understand the need for change, imagine new ways of doing things, and support the charity in realising the ideas in their context. Although the duality of this role was of value to all VCS organisations involved, the stakeholders' preconception of design and receptivity to it was also directly linked to its potential impact.

4.3 Understanding the role of Design

Data showed that often stakeholders were confused about the role that design could play within a charity. This confusion arose because of a misunderstanding of design as a practise

of “making products for the market”, which was a common perspective in stakeholders who had not been exposed to design activities in the past. All four charities received information about the DfS approach before the collaboration commenced in order to challenge those preconceptions. Despite this consistency, analysis shows that the understanding of the DfS approach was different in each setting, which influenced the trajectory of the project.

In Charities A, C and D, there was both an expectation and desire that the designer would operate across the different levels of the organisation and challenge their existing processes. Charity A also predicted that the collaboration would “influence personal and organisational learning” and that they wanted the designer “to influence the way [Charity A] work”. In Charity C, the CEO stated in their pre-collaboration interview: “I think being challenged to think about things in different ways... that’s one of my expectations”. Furthermore, in Charity D the aim of the collaboration was to “bring a new perspective and way of looking at things” to challenge the way the charity had done things in the past.

In contrast, management stakeholders in Charity B linked the DfS approach to the marketing of services; “I cannot see how you can differentiate that much... between service design and the marketing and communication of what you’re trying to do”. Although the stakeholders’ lack of knowledge about the DfS approach was expected, their preconception became a barrier to the design activity when the outcomes being generated were seen to extend beyond traditional Marketing Communications. When design work challenged fundamental policies and structures in the organisation, for example interrogating the way that membership prices were set, the work was not well received. The roles that the designer was allowed to adopt in Charity B were therefore greatly restricted.

Considering Charity B’s current organisational practice, the analysis shows that management did not see this challenging role as appropriate; “it’s not your role [to say what services should operate] but I’m prepared to listen to those large facts” and “I want something... that says you may just have to think about that a little differently and we may dismiss that”. The data demonstrates a low receptivity to change in Charity B. This receptivity is most evident in their response to proposals made throughout the collaboration that would impact on their current models of working. In Charity A and D, the organisation-wide appetite to try new processes and be open to the outcomes that they presented, provided an ideal environment for the design activity to progress. Likewise, Charity C’s stakeholders identified that they were comfortable with the concept of transformation; “we are quite used to change and challenging the business model”.

The readiness for change and receptivity to challenge observed in Charities A, C and D, in comparison to the lack of appetite for this at an executive level in Charity B, ultimately restricted the designer’s work to a service level in that organisation.

5. Conclusions

Socially-engaged designers and the VCS share the same goal of inciting positive change within society. When designers and the VCS can find common ground for collaboration it can

benefit society by enabling work that would otherwise not be done to take place, transforming the organisations, and society.

The paper identifies a number of benefits to adopting a DfS approach within the VCS, namely; improved customer experiences and organisational learning, which in turn can lead to financial gains. To achieve such impacts, the paper suggests that a key role for the designer (and the DfS approach) is that of 'challenger', before proposing co-designed alternative visions. The paper has similarly presented factors that can impede these impacts, in particular including a lack of understanding of the DfS approach and their receptivity to challenge.

The findings show that a design research framework can allow VCS organisations to successfully reimagine 'what is', but in a way that reduces the apparent 'riskiness' by engaging in a discrete, demonstrative project and lowering the associated costs.

The current impetus on both the VCS and academic institutions to increase their efficiency and impact means that design research collaborations offer all parties a timely opportunity. For the VCS, design research offers an organisation the opportunity to engage in a design-led approach as a pilot, outwith of a traditional fee-paying structure. For designer researchers in this context, engaging with the VCS provides them with a willing research site with meaningful data to, in this case, extrapolate the value of a DfS approach to VCS stakeholders. For an academic institution, the benefit of engaging in such a model is that it can leverage significant, and locally sensitive resources, to tackle the region's social problems, thus increasing its own impact.

In each of these instances, there is a balance that must be attained to ensure that the relationship between the designer and VCS is appropriate for the collaboration. The designer is offering financially valuable services to some organisations and not others; the designer is therefore making a choice about which organisation is more worthwhile as a case study. This imbalance puts significant power in the hands of the researcher, thus, designers conducting this activity must be aware of this power as they enter, and exit, the field and act accordingly. Similarly, in introducing an approach that then is found to be valuable to that organisation, designers must aim to design for when they are no longer present (Blomberg & Darrah, 2014; Botero & Hyysalo, 2013), in order that the VCS continue to benefit.

Organisations participating in research must also be aware that the design research being conducted is not 'free'; there is an obligation to make use of the resources provided, support the designer within the context and provide accurate data for the research activity. In Charity B, without the required permission to challenge the existing practices of the organisation, the designer's potential impact was limited; a designer who could otherwise be engaged in socially-valuable activities.

Lastly, the academic institution must ensure that it tackles problems that are the most relevant to its locale. Academic institutions should ensure that the case studies being conducted are of significance to the region and the country. The academic institution, in this

context, can also act as a mediator between the designer and the VCS to ensure that the collaboration reaches its potential.

6. Further work

Design researchers have a continued, crucial role to play in exposing VCS organisations to the value of design, and also extending our knowledge of the impact of the approach in this important context. Although the opportunity offered by the doctorates helped to expose VCS organisations to the value of design, further research needs to be done into other sustainable ways of introducing and then up-skilling the sector in an approach that will be of particular value in times of austerity. Models such as 'grant plus' (where expert support is offered alongside funding), undergraduate and postgraduate student projects and other academic partnerships could all be explored as ways of working with resource-poor organisations.

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